TABLE OF CONTENTS

1. OVERVIEW 1

2. INSTALLATION 4

2.1. VIDEO CONNECTIONS 5

2.2. GENERAL PURPOSE INPUTS AND OUTPUTS 5

2.3. ETHERNET CONNECTIONS 7

2.4. CONFIGURING THE NETWORK SETTINGS 8

3. SPECIFICATIONS 12

3.1. SERIAL VIDEO INPUT 12

3.2. RECLOCKED SERIAL VIDEO OUTPUT 12

3.3. SIGNAL ENCODING (-SLKE VERSION) 12

3.4. ELECTRICAL 12

3.5. PHYSICAL 13

4. STATUS INDICATORS 14

5. CARD EDGE MENU SYSTEM 15

5.1. CARD-EDGE CONTROL 15

5.2. NAVIGATING THE CARD-EDGE 15

5.3. CARD-EDGE MENU STRUCTURE 16

5.4. VIDEO INPUT CONTROL MENU 17

5.4.1. Output Video Standard 17
5.4.2. Output Control 18
5.4.3. Switch Mode 18
5.4.4. Switch Line 18
5.4.5. Vertical Line Phase Adjust 18
5.4.6. Horizontal Line Phase Adjust 18

5.5. AUDIO INPUT CONTROL MENU 19

5.5.1. Group Enable 20
5.5.2. SoftSwitch Enable 20
5.5.3. Audio Mixer Control 20
5.5.3.1. Understanding the Audio Mixer 20
5.5.3.2. Mixer Menu Control 23

5.5.4. Audio Mixer Gain Control 24
5.5.5. Audio Mixer Inversion Control 25

5.6. VIDEO PROCESSOR CONTROL MENU 26

5.6.1. Black Level Adjust 26
5.6.2. Luminance Level Adjust 26
5.6.3. Chroma Level Adjust 26
5.6.4. Hue Adjust *(SD Only)* 26

5.7. SWITCHER NODE MENU 27

5.7.1. Loss of Video Mode 27
5.7.2. GPI Control Mode 28
5.7.3. Line Synchronizer Enable 28
5.7.4. Genlock Source Control 28
5.7.5. Fault Collection Mode 29

5.8. FAULT DURATION MENU 30

5.8.1. Video Black Duration 30
5.8.2. Picture Noise Level 31
5.8.3. Picture Freeze Duration 31
5.8.4. Video Error Duration 31
5.8.5. Audio Over Level 31
5.8.6. Audio Over Duration 31
5.8.7. Audio Silence Level 31
5.8.8. Audio Silence Duration 31

5.9. ALARM SELECT MENU 32

5.9.1. Fault Duration 33
5.9.2. Fault Logic 33
5.9.3. Video Loss Select 33
5.9.4. Video Freeze Select 33
5.9.5. Video Black Select 33
5.9.6. Audio Loss Select 34
5.9.7. Audio Over Select 34
5.9.8. Audio Silence Select 34

5.10. DISPLAY ORIENTATION MENU 35

5.11. VERSION INFORMATION MENU 35

5.12. FACTORY RESET MENU 35

6. VISTALINK® REMOTE MONITORING/CONTROL 36

6.1. WHAT IS VISTALINK®? 36

6.2. VISTALINK® CONFIGURATION 37

6.3. MAIN MODULE NODE 37

6.3.1. General 37
6.3.2. Misc Control 38
6.3.2.1. Genlock Source 39

6.3.2.2. Factory Reset 39
6.3.3. Screen 1 40
6.3.3.1. Starting Row 40
6.3.3.2. Num of Rows 40
6.3.3.3. Color Background 41
6.3.4. Thumbnail (+TL Only) 41
6.3.4.1. Enable 41
6.3.4.2. Round Robin 41
6.3.4.3. SD Size 42
6.3.4.4. HD Size 42
6.3.4.5. Destination Address 42
6.3.5. SLKE Configuration (-SLKE Only) 42
6.3.5.1. SLKE Enable 42
6.3.5.2. Total Bit Rate 42
6.3.5.3. SAP Program Name 43
6.3.5.4. GOP Size 43
6.3.5.5. Mode 43
6.3.5.6. Quad Split Orientation 43
6.3.5.7. Audio Input 43
6.3.5.8. Output Timing Master 43
6.3.5.9. Multicast Address 43
6.3.5.10. Port Number 43
6.3.5.11. TTL Number 43
6.3.5.12. IP Address 43
6.3.5.13. Net Mask 43
6.3.5.14. Gateway Address 44

6.4. ACO 1 CONTROL 44

6.4.1. Module Control 44
6.4.1.1. Switch Line 44
6.4.1.2. Switch Mode 44
6.4.1.3. Program Output 45
6.4.1.4. Line Sync Control 45
6.4.1.5. Vertical Phase 45
6.4.1.6. Horizontal Phase 46
6.4.1.7. Output Video Standard 46
6.4.1.8. Fault Collection Control 46
6.4.1.9. GPI 47
6.4.1.10. Loss of Video Control 47
6.4.1.11. Video Proc Control 47
6.4.1.12. Display Screen 47
6.4.1.13. Video Standard – Input 1 47
6.4.1.14. Video Standard – Input 2 47
6.4.1.15. Current Output 48
6.4.2. Audio Control 48
6.4.2.1. Audio Embedder Control 48
6.4.2.2. Embedded Audio Soft-Switch Control 49
6.4.3. Video Fault Duration Control 49
6.4.3.1. Black Duration 49
6.4.3.2. Picture Noise Level 49
6.4.3.3. Freeze Duration 49
6.4.3.4. Video Error Duration 50

6.4.4. Audio Fault Duration Control 50
6.4.4.1. Over Level 50
6.4.4.2. Over Duration 50
6.4.4.3. Silence Level 50
6.4.4.4. Silence Duration 50
6.4.5. Fault Condition – Video 1 51
6.4.5.1. Fault Trigger – Video Input 1 51
6.4.5.2. Fault Hold Duration 52
6.4.5.3. Logic 52
6.4.6. Collective Faults – Video 1 52
6.4.7. Audio Mixer – Ch 1 to 2 54
6.4.7.1. Source Select 55
6.4.7.2. Gain Adjust 55
6.4.7.3. Invert Enable 55
6.4.8. Misc Traps 56
6.4.9. Video Fault Traps 56
6.4.10. Video 1 – Audio Fault Traps 57

6.5. INTELLIGAIN OPTION 58

6.6. INTELLITRAK AND INTELLIMATCH OPTIONS 59

6.6.1. IntelliTrak Analyzer 59
6.6.1.1. Analysis Window State 59
6.6.1.2. Window Margin Contros 59
6.6.1.3. Audio Channel Analyzer 59
6.6.2. IntelliTrak 60
6.6.2.1. IntelliTrak State 60
6.6.2.2. OSD State 61
6.6.2.3. Source Input 61
6.6.2.4. Destination Input 61
6.6.2.5. IntelliTrak Thresholds 61
6.6.2.6. IntelliTrak Monitor 62
6.6.2.7. IntelliTrak Faults 62

7. FIRMWARE UPGRADE 64

8. TROUBLESHOOTING 66

8.1. MODULE NOT APPEARING IN VISTALINK® 66

8.2. INTELLITRAK/INTELLIGAIN OPTIONS ARE NOT AVAILABLE IN VLPRO 66

8.3. VIDEO SOURCES ARE NOT BEING DETECTED 66

Figures

Figure 1-1: 7700ACO2-HD Block Diagram 3
Figure 2-1: Rear Panel 4
Figure 2-2: GPIO Pin Out 5
Figure 2-3: GPI Input Circuitry 6
Figure 2-4: GPI Output Circuitry 6
Figure 2-5: Main Setup Menu 9
Figure 2-6: Network Setup Menu 9
Figure 2-7: Trap Setup Menu 10

Figure 2-8: Show All Trap Destinations 11
Figure 4-1: Status LED Locations 14
Figure 5-1: Full Mixer Stage 21
Figure 5-2: Single Mixer Stage 22
Figure 6-1: Module Nodes 37
Figure 6-2: General Tab 38
Figure 6-3: Misc Control Tab 38
Figure 6-4: Screen 1 Tab 40
Figure 6-4: Thumbnail Tab 41
Figure 6-4: SLKE Configuration Tab 42
Figure 6-5: Module Control Tab 44
Figure 6-6: Audio Control Tab 48
Figure 6-7: Video Fault Duration Control Tab 49
Figure 6-8: Audio Fault Duration Control Tab 50
Figure 6-9: Fault Condition – Video 1 Tab 51
Figure 6-10: Collective Faults – Video 1 Tab 53
Figure 6-11: Audio Mixer – Ch 1 to 2 Tab 54
Figure 6-12: Misc Traps Tab 56
Figure 6-13: Video Fault Traps 56
Figure 6-14: Video 1 – Audio Fault Traps 57
Figure 6-15: IntelliGain Option Parameters 58
Figure 6-16: IntelliTrak Analyzer Tab for +IT Option & +ITM Option 59
Figure 6-17: IntelliTrak Tab for +IT Option 60
Figure 6-18: IntelliTrak Tab for +ITM Option 60
Figure 6-19: IntelliTrak Faults for +IT Option 62
Figure 6-20: IntelliTrak Faults for +ITM Option 63
Figure 7-1: Upgrade Window 64
Figure 7-2: Choose File Window 65

Tables

Table 2-1: Standard RJ45 Wiring Colour Codes 7
Table 5-1: Top Level Menu Structure 16
Table 5-2: Video Input Control Menu Structure 17
Table 5-3: Audio Input Control Menu Structure 19
Table 5-4: Audio Mixer Name Mapping 20
Table 5-5: Audio Mixer Name Mapping 24
Table 5-6: Audio Mixer Name Mapping 25
Table 5-7: Video Processor Menu Structure 26
Table 5-8: Video Switcher Node Menu Structure 27
Table 5-9: Alarm Select Menu Structure 32
Table 6-1: Genlock Source Menu Options 39
Table 6-2: Color Background Menu Options 41
Table 6-3: Switch Mode Menu Options 45
Table 6-4: Line Sync Control Menu Options 45
Table 6-5: Output Video Standard Menu Options 46
Table 6-6: Fault Collection Control Menu Options 46
Table 6-7: GPI Menu Options 47
Table 6-8: Logic Options 52
Table 6-9: Source Select – X Menu Options 55
Table 6-10: Source Input Menu Options 61
Table 6-10: IntelliTrak Monitored Fields 62

REVISION HISTORY

REVISION	DESCRIPTION	DATE
0.1	Preliminary version (Firmware Version 1.0b2775, JAR Version 173)	April 2010
0.2	Corrected grammatical error in Firmware Upgrade section	May 2010
0.3	Correct GPO operation	June 2011
1.0	Full release, added StreamLINK (-SLKE) option, general cleanup Firmware version 1.0b 3914; Standalone JAR: 187, FC JAR: 40	Sept 2011

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1. OVERVIEW

The 7700ACO2-HD is the industry's leading smart automatic changeover (ACO) for high definition 1.5Gb/s or standard definition 270Mb/s serial digital video signals.

This device provides:
- Dual processing paths on a single module
- Smart HD/SD-SDI automatic protection switching of both paths
- Video and Audio Proc Amp Control
- Built-in Trouble Slide per ACO
- Optional IntelliGain™ Audio Loudness Processing with Dynamic Audio Range Control
- Optional IntelliTrak™ Audio/Video LipSync Analysis
- Optional StreamLINK™ H.264 video encoder for confidence monitoring
- Optional ThumbLINK™ Thumbnail generater for confidence monitoring

These modules have dual independent processing paths providing both high density and availability of any HD-SDI or SD-SDI video inputs signals (program and back-up). These modules provide a passive loop-thru of both primary and backup input video sources and provide dual safe program outputs.

The 7700ACO2-HD incorporates Evertz proprietary SoftSwitch™ technology for clean video and embedded audio switching. Line synchronizers on the video inputs can accommodate differences in timing of up to ±1/2 a line on the video inputs.

The 7700ACO2-HD incorporates Evertz essential audio and video monitoring which is used to drive the real time automatic switch logic processor. Common parameters include user configurable loss of signal, freeze, and black detect.

The 7700ACO2-HD can optionally be ordered with Evertz® patented IntelliGain™ Audio and Loudness Processor. The IntelliGain™ processor is designed to normalize perceived differences in audio loudness in real time for any HD/SD-SDI signal with embedded audio. This module will internally de-embed the audio signals, regulate the signal level based on a used defined target loudness level, then re-embed the corrected audio signals back into the video output.

The 7700ACO2-HD can optionally be ordered with Evertz® patented IntelliTrak™ Audio/Video LipSync Analysis. IntelliTrak™ non-invasively (no watermark) detects audio and video latency between two video signals, in real time with normal content.

As part of a complete signal monitoring chain, the 7700ACO2-HD can optionally be ordered with Evertz® ThumbLINK (+TL) for or Evertz® StreamLINK (-SLKE) for a H.264 encode of either all four inputs in a quad-split, or any one input, built off Evertz® award winning StreamLINK engine.

VistaLINK® enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP - enabled control systems such as Evertz VistaLINK® PRO locally or remotely.

The 7700ACO2-HD occupies two card slots and can be housed in the 3RU 7800FR frame which has a 15 slot capacity or the portable 3RU 350FR frame which has a 7 slot capacity.

Features:

Video Inputs and Outputs
- Auto sensing of HD and SD input formats
- Smart Automatic changeover based on user programmable switch logic
- Card edge menu control for configuration of operating modes and LEDs for reporting signal presence, router state, module status
- Remote monitoring via Evertz control panels or VistaLINK® PRO
- Bypass relay protection on main program output
- Integrated SoftSwitch technology for clean video and "popless" embedded audio switching

IntelliGain Audio and Loudness Processor
- Consistent audio loudness levels within a channel and/or program
- Gain control within a program interval to preserve audio dynamic range
- Artifact-free transitions between program and commercials
- Elimination of drastic volume changes during commercials and interstitials
- Ideal for aggregator applications and multi-channel playout facilities (DTH, Cable, IPTV)
- VistaLINK® controlled and monitored

IntelliTrak Audio/Video LipSync Analysis
- Works with real, program video content - no special test patterns or generation equipment needed
- Non-invasive detection
- Ideal for inter-facility measurements, such as comparing outbound and off-air returns
- On-Screen Display with all latency and delay measurement values
- VistaLINK® controlled and monitored

ThumbLINK Thumbnail Generator
- One frame per second of video sent as a Thumbnail for confidence monitoring
- Works with VistaLINK Thumbnail server.

StreamLINK H.264 Video Encoder
- Standard Definition H.264 of content for confidence monitoring
- Available as a quad-split of all input signals, or one cherry picked signal
- Audio is cherry picked as one pair from any input source.

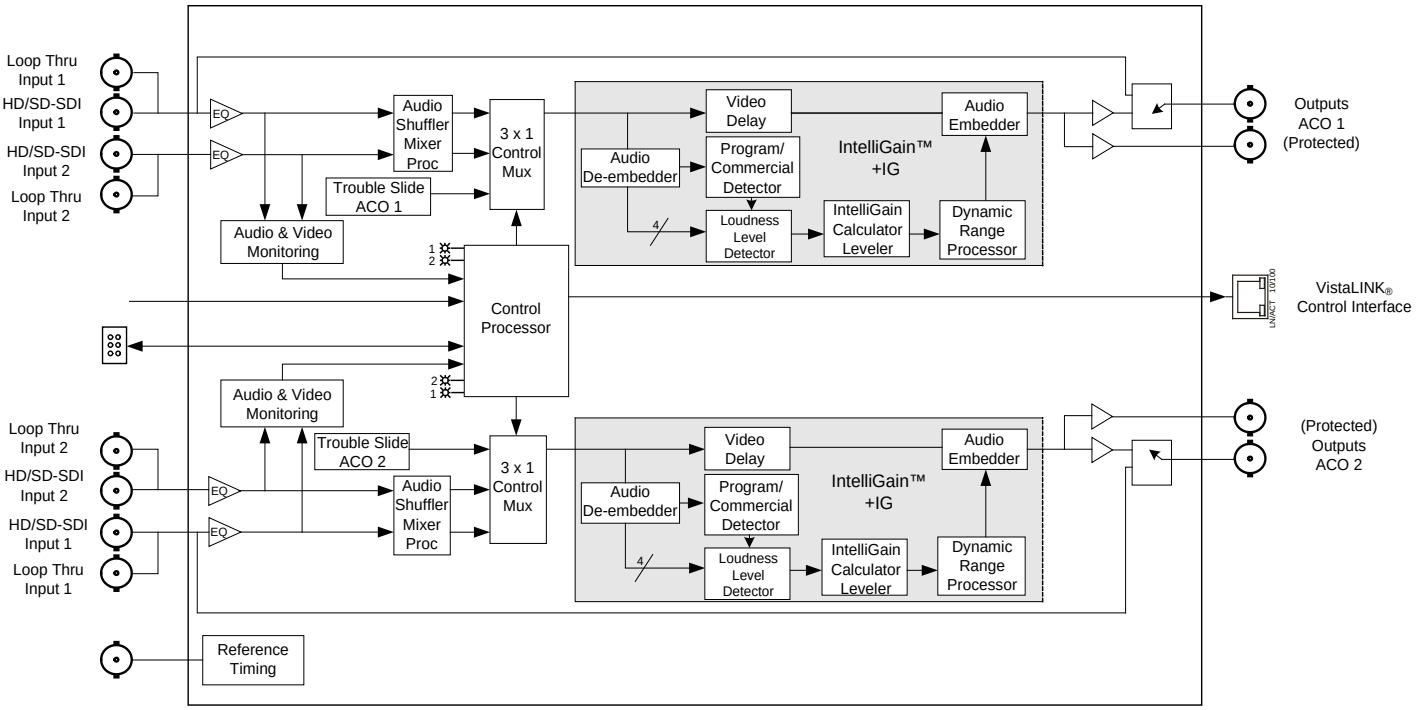


Figure 1-1: 7700ACO2-HD Block Diagram

2. INSTALLATION

The 7700ACO2-HD comes with a companion rear plate that occupies two slots in the frame. For information on mounting the rear plate and inserting the module into the frame see section three of the 7700FR chapter.

The module is installed in the RIGHT-HAND side of rear-plate.

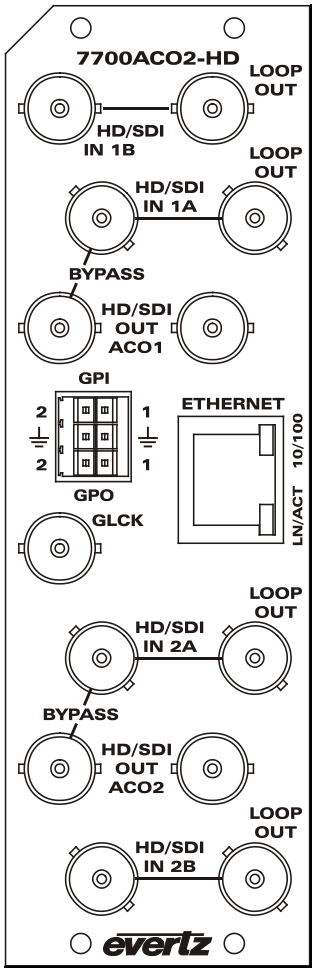


Figure 2-1: Rear Panel

2.1. VIDEO CONNECTIONS

HD/SDI INPUT 1A/2A and 1B/2B: The input BNC connector for 10-bit serial digital video signals compatible with the SMPTE 292M, SMPTE 259M, or SMTPE 310M standard.

HD/SDI INPUT 1A/2A and 1B/2B LOOP OUT: BNC connector for passive looped output of the input signals.

LOOP OUT connectors MUST BE terminated with 75 ohms for proper operation.

HD/SDI OUT ACO1 & ACO2: This BNC connector is used to output the video as serial component video, compatible with the SMPTE 292M or SMPTE 259M standard (same as input) with embedded audio. One output BNC (labeled) is bypass protected with the A input in the event of a power failure.

GLCK: This BNC connector is used to input a NTSC black burst or tri-level reference signal.

2.2. GENERAL PURPOSE INPUTS AND OUTPUTS

The 7700ACO2-HD has two GPI's and two GPO's available via terminal block. The terminal block pin out is shown in Figure 2-2. Connections are made by putting a force on the inner square (a push-pin or small flat screwdriver work well), inserting the wire in the adjacent circular opening, and then releasing the force on the inner square.

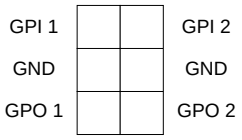


Figure 2-2: GPIO Pin Out

GPI 1 controls the ACO1 and GPI 2 controls the ACO2. If the GPI is closed to ground, Input A will be the active output. If the GPI is set to high impedance, Input B will be the active output. The GPI's are active low with internal pull up resistors (2k Ohms) to +5V. To make an input active, lower the signal to near ground potential (i.e. connect to shell or chassis ground). This can be done with a switch, relay, TTL drive, GPO output or other similar method. Figure 2-3 shows the input circuit for the general purpose inputs.

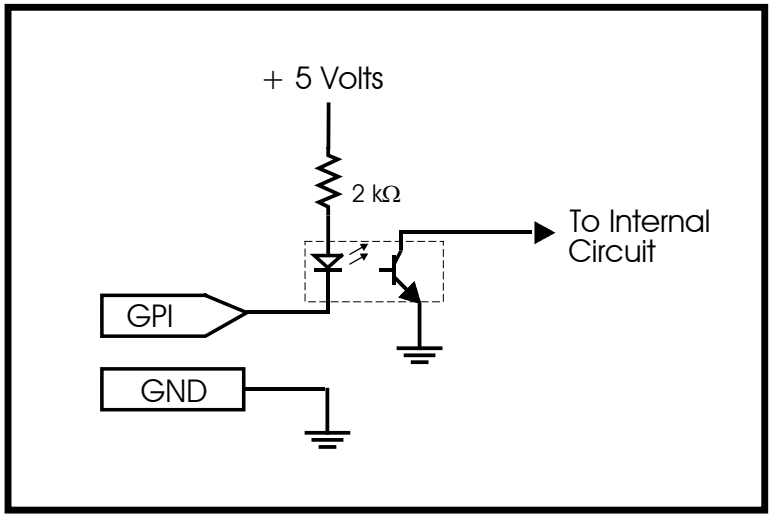


Figure 2-3: GPI Input Circuitry

GPO 1 tallies on the ACO1 path and GPIO 2 tallies on the ACO2 path. The GPO will follow the respective video output. If Video 1 is routed to the output, the GPO will be LOW, and if Video 2 is routed to the output, the GPO will be HIGH. The GPO is active low with internal pull up (10k Ohm) resistors to +5V. When the output goes low it is able to sink up to 10mA. When high, the signal will go high (+5V). **Do not draw more than 100µA from the output**. Figure 2-4 shows the circuit for the general purpose output.

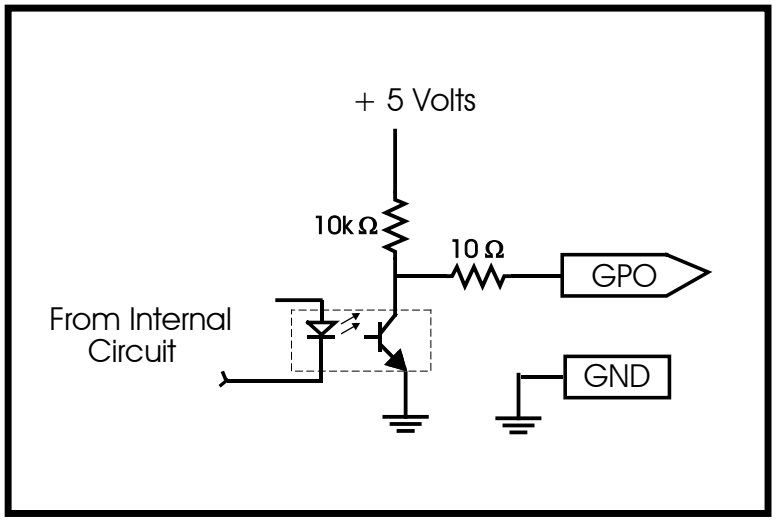


Figure 2-4: GPI Output Circuitry

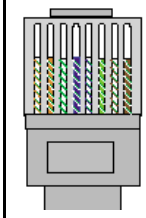
2.3. ETHERNET CONNECTIONS

The 7700ACO2-HD can communicate with VistaLINK® via its own Ethernet connection, or via the 7700FC.

The –SLKE version only communicates via the 7700FC, as the Ethernet port is reserved for streaming video.

The 7700ACO2-HD can be configured using the VistaLINK® -C Configuration tool connected by Ethernet. The 7700ACO2-HD is designed to be used with either 10Base-T (10 Mbps) or 100Base-TX (100 Mbps) also known as *Fast Ethernet*, twisted pair Ethernet cabling systems. When connecting for 10Base-T systems, category 3, 4, or 5 UTP cable as well as EIA/TIA – 568 100Ω STP cable may be used. When connecting for 100Base-TX systems, category 5 UTP cable is required. The cable must be "straight through" with a RJ-45 connector at each end. Make the network connection by plugging one end of the cable into the RJ-45 receptacle of the 7700ACO2-HD and the other end into a port of the supporting hub.

The straight-through RJ-45 cable can be purchased or can be constructed using the pinout information in Table 2-1. A colour code wiring table is provided in Table 2-1 for the current RJ 45 standards (AT&T 258A or EIA/TIA 258B colour coding shown). Also refer to the notes following the table for additional wiring guide information.



Pin #	Signal	EIA/TIA 568A	AT&T 258A or EIA/TIA 568B	10BaseT or 100BaseT
1	Transmit +	White/Green	White/Orange	X
2	Transmit –	Green/White or White	Orange/White or Orange	X
3	Receive +	White/Orange	White/Green	X
4	N/A	Blue/White or Blue	Blue/White or Blue	Not used (required)
5	N/A	White/Blue	White/Blue	Not used (required)
6	Receive –	Orange/White or Orange	Green/White or Green	X
7	N/A	White/Brown	White/Brown	Not used (required)
8	N/A	Brown/White or Brown	Brown/White or Brown	Not used (required)

Table 2-1: Standard RJ45 Wiring Colour Codes

Note the following cabling information for this wiring guide:

- Only two pairs of wires are used in the 8-pin RJ 45 connector to carry Ethernet signals.
- Even though pins 4, 5, 7 and 8 are not used, it is mandatory that they be present in the cable.
- 10BaseT and 100BaseT use the same pins, a crossover cable made for one will also work with the other.
- Pairs may be solid colours and not have a stripe.
- Category 5 cable must use Category 5 rated connectors.

The maximum cable run between the 7700ACO2-HD and the supporting hub is 300 ft (90 m). The maximum combined cable run between any two end points (i.e. 7700ACO2-HD and PC/laptop via network hub) is 675 feet (205 m). When you have connected the 7700ACO2-HD and set up the IP address you should 'ping' the device from your PC to make sure that it is connected correctly.

2.4. CONFIGURING THE NETWORK SETTINGS

In order to configure the module through SNMP, a network connection must be established. Network settings are configured through a serial connection (using a terminal program such as HyperTerminal), using the instructions below:

1. Attach a serial ribbon cable (Evertz Part Number: WA-S67, see “Upgrading Firmware” manual) to the J3 jumper on the top of the card, and plug the other end of the serial cable into the COM port on your computer.

2. Insert the card into the frame and power up the unit.

3. Open a serial terminal session and enter the following port settings into the properties window:

Baud	115200
Parity	None
Data Bits	8
Flow Control	None
Stop Bits	1

   Once the settings have been entered select the “OK” button.

4. Once the module is fully booted, there will be a prompt to enter a username and password. Use the following username and password to login:

   Login: config
   Password: config

5. Once logged in, the user will be presented with a *Main Menu* setup screen as shown in Figure 2-5.

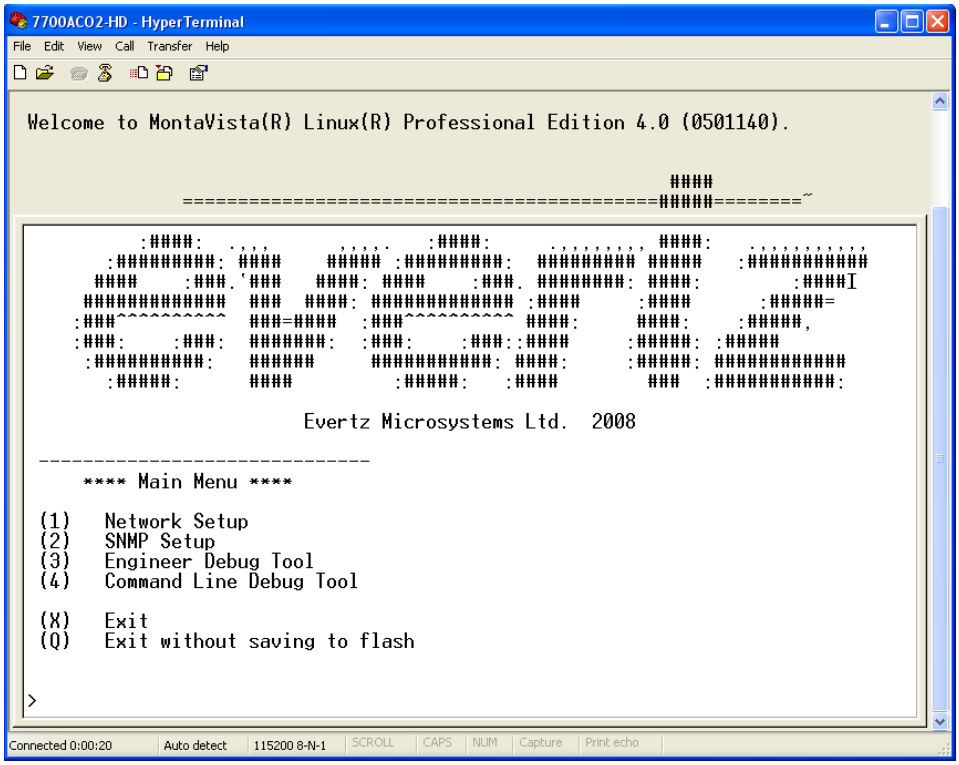


Figure 2-5: Main Setup Menu

6. To configure the network settings, select option <1> *Network Setup* from the main menu.

7. A *Network Setup* screen, as shown in Figure 2-6, will appear enabling the user to enter the appropriate network information.

8. The user must enter the IP Address, Netmask, Gateway, and Broadcast addresses for the card. Type the corresponding number of the desired address into the command line. For example, to set the IP Address in the Network Setup screen, select option <1> *IP Address*.

9. Once complete, the user will be prompted to enter the IP Address of the card. Enter the IP address and then press the enter key.

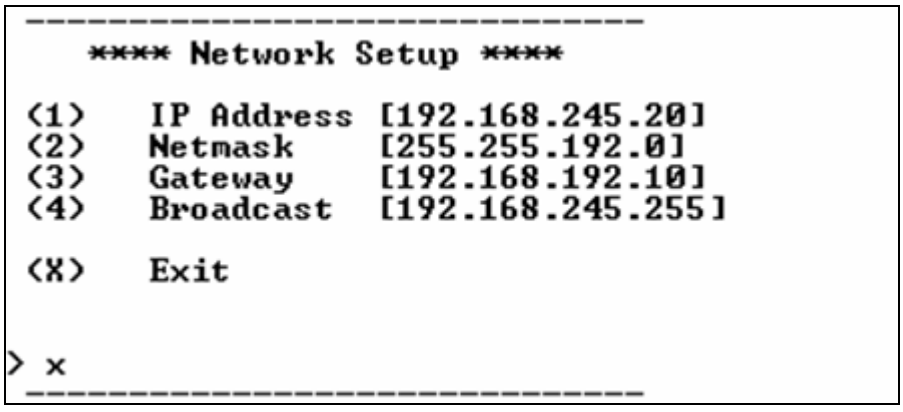


Figure 2-6: Network Setup Menu

10. Once all the settings for the *Network Setup* have been configured, the user can type **x** to exit the *Network Setup* configuration.

11. Skip to step 18 if you are not using SNMP Trap Monitoring.

12. Next the user will need to configure the SNMP Setup. To do so, return to the main menu screen, as shown in Figure 2-5, and select option <2> *SNMP Setup*.

13. A *Trap Setup* Menu will appear as shown in Figure 2-7. To create a trap destination, select option <1> *Add Trap Destination*.

14. The user will be prompted to enter a destination IP address into the "Enter IP of New Destination" field.

15. The user can enter multiple trap destinations as outlined in steps 11 and 12. To remove a trap destination, select option <2> *Remove Trap Destination* from the menu.

**** Trap Setup Menu ****
(1) Add Trap Destination
(2) Remove Trap Destination
(3) Show All Trap Destinations
(X) Exit
> 1
> Enter IP of New Destination: 192.168.8.100

Figure 2-7: Trap Setup Menu

16. The user will be prompted to enter the destination IP address of the trap destination which they wish to remove.

17. The user can view the trap destinations assigned to the card by selecting option <*3*> *Show All Trap Destinations*. A list of trap destinations will be displayed as shown in Figure 2-8. To exit the *Trap Setup Menu*, select the <x> *Exit* and you will return to the Main Menu.

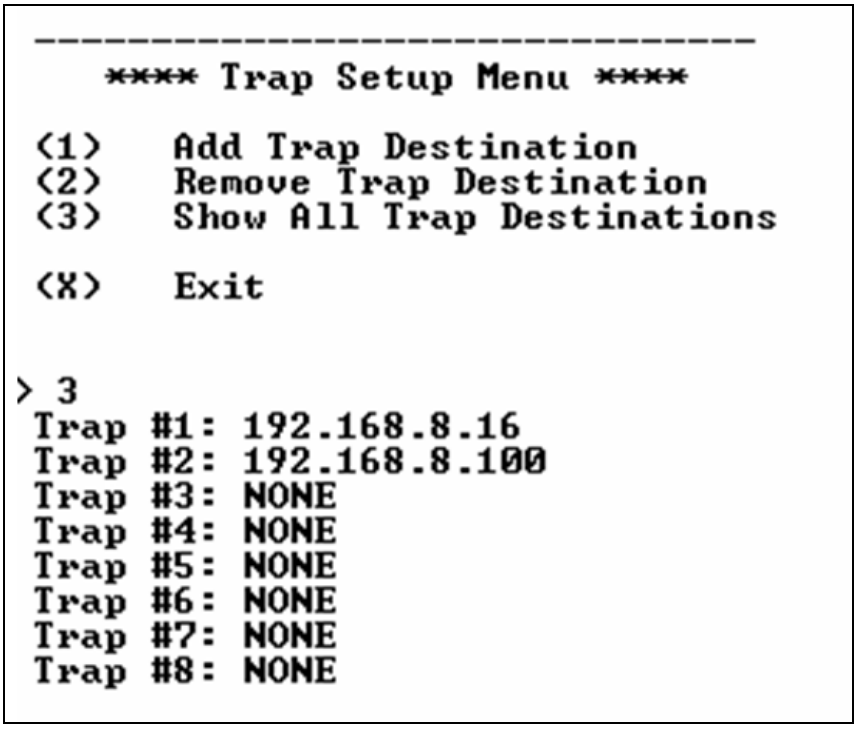


Figure 2-8: Show All Trap Destinations

18. The basic configuration of the card is now complete. Once you have exited the sub-menus and you have returned to the Main Menu screen, the user can save the changes by selecting <X> *Exit* from the Main Menu options.

19. Once the user has exited the Main Menu, the changes will be saved and a message stating "Changes are saved!" will be displayed.

Please note if the user selects option <*W*> *Exit without saving to flash*, the changes made during the configuration process will be lost.

20. Once the changes have been saved, the user must power cycle the unit and remove the ribbon cable before proceeding to VistaLINK® configuration.

Wait at least 30 seconds after applying the network changes before power cycling to allow the settings to be written to memory.

3. SPECIFICATIONS

3.1. SERIAL VIDEO INPUT

Standard:	Auto-detects standard 1.485Gb/s, SMPTE 292M (1080i/59.94, 1080i/50, 720p/59.94, 720p/50) SMPTE 260M, SMPTE 274M, SMPTE 296M, SMPTE 349M (HD or SD carrier) 270Mb/s SMPTE 259M-C (525i/59.94 or 625i/50)
Connector:	2 BNC per IEC 61169-8 Annex A
Input Equalization:	Automatic 100m @ 1.5Gb/s with Belden 1694A or Equivalent cable
Return Loss:	> 20dB up to 270MHz > 13dB up to 1.5GHz

3.2. RECLOCKED SERIAL VIDEO OUTPUT

Standard:	Set by user
Number of Outputs:	2 Smart switched program outputs (Input A is bypass relay protected) Loop thru on Input A and Input B (must be terminated)
Connector:	BNC per IEC 61169-8 Annex A
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	SD: 100ps nominal HD: 600ps nominal
Overshoot:	< 10% of amplitude
Return Loss:	> 20dB
Alignment Jitter:	< 0.20 UI

3.3. SIGNAL ENCODING (-SLKE VERSION)

Video Encoding Engine:	H.264/AVC (MPEG-4 Part 10) SD Base Profile @ Level 3
Audio Encoding Engine:	MPEG 1 L2/AC-3 Pass Thru
Traffic Shaping:	Constant bit rate
GOP Structure:	Configurable GOP sizes
Video Resolution:	525i/625i
Recommended Bit Rate:	>= 1Mb/s
Frame Encoding:	IP
Frame Rate:	Full frame rate
Audio Channels:	1 Stereo Pair (L/R)
Audio Output Bit Rate:	Fixed 192Kb/s
Delivery:	UDP Unicast/Multicast

3.4. ELECTRICAL

Voltage:	+12V DC
Power:	20 Watts
EMI/RFI:	Complies with FCC regulations for class A devices Complies with EU EMC directive

3.5. PHYSICAL

Number of Slots:

350FR:	2
7700FR-C:	2
7800FR:	2

4. STATUS INDICATORS

The 7700ACO2-HD has 6 LED Status indicators on the front card edge to show operational status of the card at a glance. Figure 4-1 shows the location of the LEDs and card edge controls.

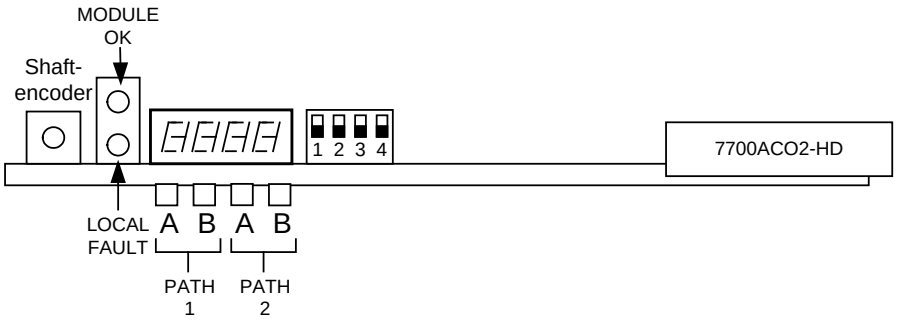


Figure 4-1: Status LED Locations

Two large LEDs on the front of the main board indicate the general health of the module.

LOCAL FAULT: This Red LED indicates poor module health and will be ON during the absence of a valid input signal or if a local input power fault exists (i.e.: a blown fuse). The LOCAL FAULT indication can also be reported to the frame through the FRAME STATUS jumper.

MODULE OK: This Green LED indicates good module health. It will be ON when a valid input signal is present on all inputs, and the board power is good.

These four surface mount LEDs indicate valid signal presence on the respective inputs.

5. CARD EDGE MENU SYSTEM

5.1. CARD-EDGE CONTROL

The 7700ACO2-HD is equipped with a push-button shaft encoder and a four character dot matrix display to control various functions on the module. The push-button shaft encoder is used to navigate through a menu system to set and monitor various parameters for the module.

5.2. NAVIGATING THE CARD-EDGE

The push-button shaft encoder is used to move up and down the list of available parameters to adjust. To adjust any parameter, use the shaft encoder to move up or down to the desired parameter and then press the shaft encoder in. If the parameter is a numerical value, the number will increase if you rotate the shaft encoder clockwise and decrease if you rotate the shaft encoder counter-clockwise. If the parameter contains a list of options, you can cycle through the list by rotating the shaft encoder in either direction. The parameter values are changed as you cycle through the list. A menu choice or selection is chosen by pressing the shaft-encoder in.

After selecting a parameter, the menu display will change back to the previous menu item. To change another parameter, rotate the shaft encoder to select other parameters. If the shaft encoder is not operated for several seconds the card edge control will exit the menu system and return to an idle state.

The preferred method of configuration is via SNMP (VistaLINK®). Many settings (such as IntelliGain and IntelliTrak) are not available via card edge control.

5.3. CARD-EDGE MENU STRUCTURE

The only option in the top level menu tree is *CFG*. Selecting this option will take you to the menu options available on the 7700ACO2-HD. The following is a brief description of the menu tree (see Table 5-1) that appears when you enter the card edge menu system. Selecting one of these items will take you down into the next menu level to set the value of that parameter.

The 7700ACO2-HD has two separate operating paths, resulting in two distinct outputs. On the rear panel the outputs are labeled ACO1 and ACO2. Throughout the manual, these will be referred to as Path 1 and Path 2 respectively. The menu options for both Path 1 and Path 2 will be shown as combined (in the format Path1/Path2).

Throughout the descriptions of the Menu items, default values are shown with underlined text.

VIDN	Video Input Control		Controls Input Video Parameters.
AUDN	Audio Input Control		Controls Input Audio Parameters.
VIDP	Video Processor		Controls the Video processor.
SWIN	Switcher Node		Controls switcher properties.
P1FD	Path 1 Fault Duration		Fault duration controls for Path 1.
P2FD	Path 2 Fault Duration		Fault duration controls for Path 2.
P1AS	Path 1 Alarm Select		Sets the alarms monitored for Path 1 fault.
P2AS	Path 2 Alarm Select		Sets the alarms monitored for Path 2 fault.
DISP	Display Orientation		Sets the orientation of the card edge display.
VER	Firmware Version		Displays the firmware version number.
FRST	Factory Reset		Performs a reset to factory settings.

Table 5-1: Top Level Menu Structure

The menus will timeout (approximately 30 seconds) after a period of inaction. After the timeout period expires, the menu will return to CFG menu.

5.4. VIDEO INPUT CONTROL MENU

VST1	Path 1 Video Standard		Sets the operating video standard for Path 1.
VST2	Path 2 Video Standard		Sets the operating video standard for Path 2.
MUX1	Path 1 Output Control		Sets the input to be routed to the output for Path 1.
MUX2	Path 2 Output Control		Sets the input to be routed to the output for Path 2.
SMO1	Path 1 Switch Mode		Sets the switch mode for Path 1.
SMO2	Path 2 Switch Mode		Sets the switch mode for Path 2.
SLN1	Path 1 Switch Line		Sets the switch line for routes on Path 1.
SLN2	Path 2 Switch Line		Sets the switch line for routes on Path 2.
VPH1	Path 1 Vertical Phase		Sets the vertical phase offset for Path 1.
VPH2	Path 2 Vertical Phase		Sets the vertical phase offset for Path 2.
HPH1	Path 1 Horizontal Phase		Sets the horizontal phase offset for Path 1.
HPH2	Path 2 Horizontal Phase		Sets the horizontal phase offset for Path 2.

Table 5-2: Video Input Control Menu Structure

5.4.1. Output Video Standard

VST1/VST2
525
625
HD59
7P59
HD50
7P50

This parameter sets the output standard.

525 – NTSC 525i/59.94
625 – PAL 576i/50
HD59 – 1080i/59.94
7P59 – 720p/59.94
HD50 – 1080i/50
7P50 – 720p/50

The Video Standard must be set correctly in order to properly operate. If the selected input video standards mismatch, the output video will be distorted.

5.4.2. Output Control

MUX1/MUX2
IN1
IN2

This parameter sets the output for the 7700ACO2-HD when the switch mode is set to manual (see 5.4.3).

IN1 – Input A is routed to the output.

IN2 – Input B is routed to the output.

5.4.3. Switch Mode

SMO1/SMO2
MAN
AUS
AUSB

This parameter sets the switching behaviour of the 7700ACO2-HD.

MAN – The module will be in manual switch mode. The MUX setting will be used to determine which signal is sent to the output, regardless of signal validity.

AUS – The module will be in auto switch mode. It will retain its current route state until that signal becomes invalid, at which point it will switch to the other input.

AUSB – The module will be in auto switch back mode. Input A is the primary input. If it becomes invalid, the output will switch to Input B. If Input A returns to valid, then the output will switch back to Input A.

5.4.4. Switch Line

SLN1/SLN2
1-64 (10)

This parameter sets the switching line for video switches.

5.4.5. Vertical Line Phase Adjust

The VPH1/VPH2 parameter sets the vertical (by number of lines) phase offset of the output video with respect to the path's reference source. This control is only applicable if the line synchronization parameter is enabled (section 5.7.3). The range of the control is dependent on the operating video standard.

5.4.6. Horizontal Line Phase Adjust

The HPH1/HPH2 parameter sets the horizontal (by number of samples) phase offset of the output video with respect to the path's reference source. This control is only applicable if the line synchronization parameter is enabled (section 5.7.3). The range of the control is dependent on the operating video standard.

5.5. AUDIO INPUT CONTROL MENU

P1M1	Path 1 Group 1 Enable	Enables or Disables Path 1 Group 1 Audio.
P1M2	Path 1 Group 2 Enable	Enables or Disables Path 1 Group 2 Audio.
P1M3	Path 1 Group 3 Enable	Enables or Disables Path 1 Group 3 Audio.
P1M4	Path 1 Group 4 Enable	Enables or Disables Path 1 Group 4 Audio.
P2M1	Path 2 Group 1 Enable	Enables or Disables Path 2 Group 1 Audio.
P2M2	Path 2 Group 2 Enable	Enables or Disables Path 2 Group 2 Audio.
P2M3	Path 2 Group 3 Enable	Enables or Disables Path 2 Group 3 Audio.
P2M4	Path 2 Group 4 Enable	Enables or Disables Path 2 Group 4 Audio.
ES1(1-8)	Path 1 SoftSwitch Enable	Enables or Disables Audio Pair 1-8 SoftSwitch on Path 1.
ES2(1-8)	Path 2 SoftSwitch Enable	Enables or Disables Audio Pair 1-8 SoftSwitch on Path 2.
MASS	Path 1 Video A Audio Mixer	Controls the Audio Mixer for Video A on Path 1.
MBSS	Path 1 Video B Audio Mixer	Controls the Audio Mixer for Video B on Path 1.
MCSS	Path 2 Video A Audio Mixer	Controls the Audio Mixer for Video A on Path 2.
MDSS	Path 2 Video B Audio Mixer	Controls the Audio Mixer for Video B on Path 2.
MAGC	Path 1 Video A Audio Gain	Controls Audio Gain for Video A on Path 1.
MBGC	Path 1 Video B Audio Gain	Controls Audio Gain for Video B on Path 1.
MCGC	Path 2 Video A Audio Gain	Controls Audio Gain for Video A on Path 2.
MDGC	Path 2 Video B Audio Gain	Controls Audio Gain for Video B on Path 2.
MAIV	Path 1 Video A Audio Inversion	Controls Audio Inversion for Video A on Path 1.
MBIV	Path 1 Video A Audio Inversion	Controls Audio Inversion for Video B on Path 1.
MCIV	Path 1 Video A Audio Inversion	Controls Audio Inversion for Video A on Path 2.
MDIV	Path 1 Video A Audio Inversion	Controls Audio Inversion for Video B on Path 2.

Table 5-3: Audio Input Control Menu Structure

5.5.1. Group Enable

P(1,2)M(1-4)
ON
OFF

This parameter sets whether or not audio is embedded on groups 1-4.

ON – The audio group is embedded on the output.

OFF – The audio group is not embedded on the output.

5.5.2. SoftSwitch Enable

ES(1,2)(1-8)
ON
OFF

This parameter sets whether or not SoftSwitch is enabled on audio pairs 1-8.

ON – The audio group is embedded on the output.

OFF – The audio group is not embedded on the output.

5.5.3. Audio Mixer Control

5.5.3.1. Understanding the Audio Mixer

The *MASS, MBSS, MCSS* and *MDSS* menu options lead to a submenu which controls the audio mixing. Each video output path has its own audio mixer, and there is a different mixer combination for Video A and Video B being routed out the output, for a total of four on-board audio mixers. Table 5-4 shows what audio mixer path each menu name controls.

MASS	Path 1, Video A
MBSS	Path 1, Video B
MCSS	Path 2, Video A
MDSS	Path 2, Video B

Table 5-4: Audio Mixer Name Mapping

For each audio mixer, there are a total of 16 output channels that can be configured. Available to each of these 16 channels is 65 audio sources (described in the menu selection). The full mixer path is shown in Figure 5-1.

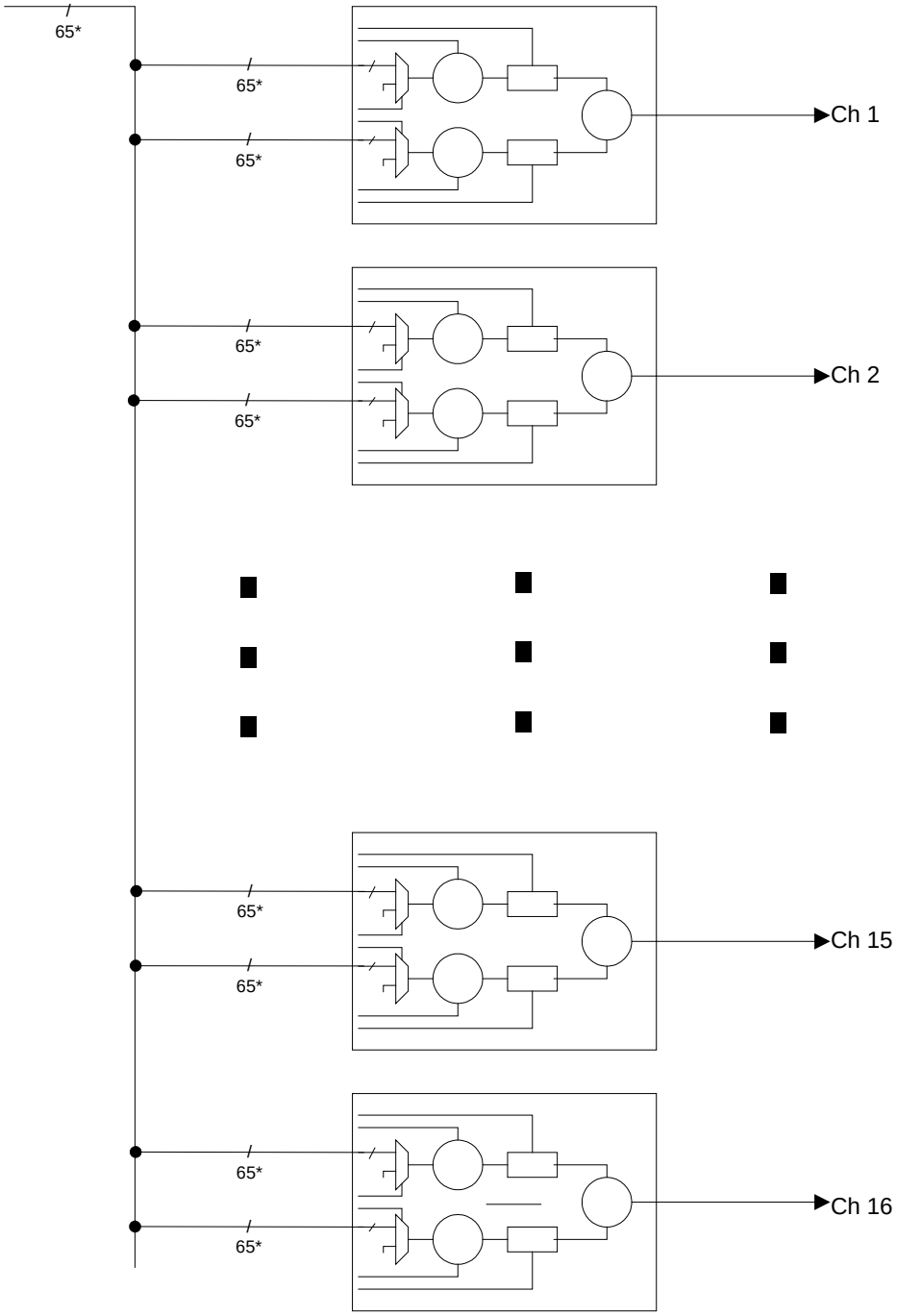


Figure 5-1: Full Mixer Stage

For each individual channel, there is a 2x1 audio mixer. Each channel is a combination of an X source and a Y source. This allows for a mono-mix on a single channel, such as a voiceover. Normal use has the Y source muted, and the X source chosen to pass through the desired channel. Figure 5-2 shows a single channel mixer stage.

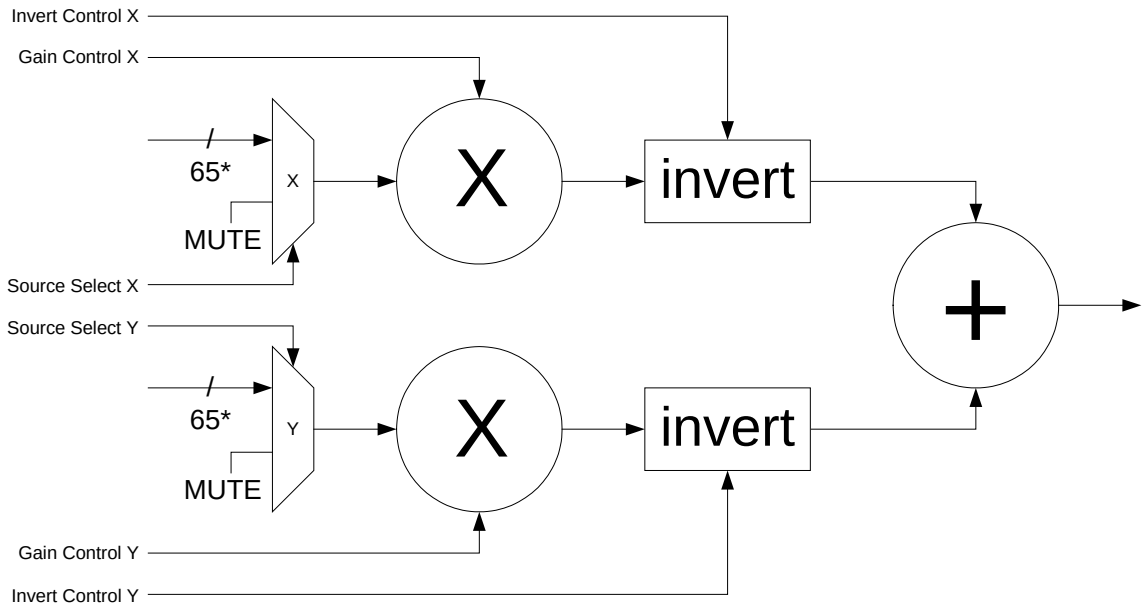


Figure 5-2: Single Mixer Stage

5.5.3.2. Mixer Menu Control

MASS/MBSS/MCSS/MDSS

- *1AS (Ch1 X Source Select)*
- *1BS (Ch1 Y Source Select)*
- *2AS (Ch2 X Source Select)*
- *2BS (Ch2 Y Source Select)*
- *3AS (Ch3 X Source Select)*
- *3BS (Ch3 Y Source Select)*
- *4AS (Ch4 X Source Select)*
- *4BS (Ch4 Y Source Select)*
- *5AS (Ch5 X Source Select)*
- *5BS (Ch5 Y Source Select)*
- *6AS (Ch6 X Source Select)*
- *6BS (Ch6 Y Source Select)*
- *7AS (Ch7 X Source Select)*
- *7BS (Ch7 Y Source Select)*
- *8AS (Ch8 X Source Select)*
- *8BS (Ch8 Y Source Select)*
- *9AS (Ch9 X Source Select)*
- *9BS (Ch9 Y Source Select)*
- *AAS (Ch10 X Source Select)*
- *ABS (Ch10 Y Source Select)*
- *BAS (Ch11 X Source Select)*
- *BBS (Ch11 Y Source Select)*
- *CAS (Ch12 X Source Select)*
- *CBS (Ch12 Y Source Select)*
- *DAS (Ch13 X Source Select)*
- *DBS (Ch13 Y Source Select)*
- *EAS (Ch14 X Source Select)*
- *EBS (Ch14 Y Source Select)*
- *FAS (Ch15 X Source Select)*
- *FBS (Ch15 Y Source Select)*
- *GAS (Ch16 X Source Select)*
- *GBS (Ch16 Y Source Select)*

For each output channel, the following audio source menu options are available for selection. The default for the X source channels is the same as the source being selected (i.e. if you are controlling MBSS -> 2AS, then the setting default will be V2C2). The default for the Y source channels is MUTE.

V1C1/V2C1 – Video A/B Channel 1
V1C2/V2C2 – Video A/B Channel 2
V1C3/V2C3 – Video A/B Channel 3
V1C4/V2C4 – Video A/B Channel 4
V1C5/V2C5 – Video A/B Channel 5
V1C6/V2C6 – Video A/B Channel 6
V1C7/V2C7 – Video A/B Channel 7
V1C8/V2C8 – Video A/B Channel 8
V1C9/V2C9 – Video A/B Channel 9
V1CA/V2CA – Video A/B Channel 10
V1CB/V2CB – Video A/B Channel 11
V1CC/V2CC – Video A/B Channel 12
V1CD/V2CD – Video A/B Channel 13
V1CE/V2CE – Video A/B Channel 14
V1CF/V2CF – Video A/B Channel 15
V1CG/V2CG – Video A/B Channel 16
1D12/2D12 – Video A/B Monomix Ch 1 + Ch 2
1D34/2D34 – Video A/B Monomix Ch 3 + Ch 4
1D56/2D56 – Video A/B Monomix Ch 5 + Ch 6
1D78/2D78 – Video A/B Monomix Ch 7 + Ch 8
1D9A/2D9A – Video A/B Monomix Ch 9 + Ch 10
1DBC/2DBC – Video A/B Monomix Ch 11 + Ch 12
1DDE/2DDE – Video A/B Monomix Ch 13 + Ch 14
1DFG/2DFG – Video A/B Monomix Ch 15 + Ch 16
1U12/2U12 – Video A/B Monomix Ch 1 - Ch 2
1U34/2U34 – Video A/B Monomix Ch 3 - Ch 4
1U56/2U56 – Video A/B Monomix Ch 5 - Ch 6
1U78/2U78 – Video A/B Monomix Ch 7 - Ch 8
1U9A/2U9A – Video A/B Monomix Ch 9 - Ch 10
1UBC/2UBC – Video A/B Monomix Ch 11 - Ch 12
1UDE/2UDE – Video A/B Monomix Ch 13 - Ch 14
1UFG/2UFG – Video A/B Monomix Ch 15 - Ch 16
MUTE – Mute Audio Channel

5.5.4. Audio Mixer Gain Control

The *MAGC, MBGC, MCGC* and *MDGC* menu options lead to a submenu which controls the audio gain on the mixers. Each video output path has its own audio mixer, and there is a different mixer combination for Video A and Video B being routed out the output, for a total of four on-board audio mixers. Table 5-5 shows what audio mixer path each menu name controls.

MAGC	Path 1, Video A
MBGC	Path 1, Video B
MCGC	Path 2, Video A
MDGC	Path 2, Video B

Table 5-5: Audio Mixer Name Mapping

MAGC/MBGC/MCGC/MDGC *1AGC (Ch1 X Source Select)* *1BGC (Ch1 Y Source Select)* *2AGC (Ch2 X Source Select)* *2BGC (Ch2 Y Source Select)* *3AGC (Ch3 X Source Select)* *3BGC (Ch3 Y Source Select)* *4AGC (Ch4 X Source Select)* *4BGC (Ch4 Y Source Select)* *5AGC (Ch5 X Source Select)* *5BGC (Ch5 Y Source Select)* *6AGC (Ch6 X Source Select)* *6BGC (Ch6 Y Source Select)* *7AGC (Ch7 X Source Select)* *7BGC (Ch7 Y Source Select)* *8AGC (Ch8 X Source Select)* *8BGC (Ch8 Y Source Select)* *9AGC (Ch9 X Source Select)* *9BGC (Ch9 Y Source Select)* *AAGC (Ch10 X Source Select)* *ABGC (Ch10 Y Source Select)* *BAGC (Ch11 X Source Select)* *BBGC (Ch11 Y Source Select)* *CAGC (Ch12 X Source Select)* *CBGC (Ch12 Y Source Select)* *DAGC (Ch13 X Source Select)* *DBGC (Ch13 Y Source Select)* *EAGC (Ch14 X Source Select)* *EBGC (Ch14 Y Source Select)* *FAGC (Ch15 X Source Select)* *FBGC (Ch15 Y Source Select)* *GAGC (Ch16 X Source Select)* *GBGC (Ch16 Y Source Select)*	For each output channel, the gain can be adjusted from – 24 dB to + 24 dB in 0.1 dB increments. The default is 0 dB.

5.5.5. Audio Mixer Inversion Control

The *MAIV, MBIV, MCIV* and *MDIV* menu options lead to a submenu which controls the audio inversion state on the mixers. Each video output path has its own audio mixer, and there is a different mixer combination for Video A and Video B being routed out the output, for a total of four on-board audio mixers. Table 5-6 shows what audio mixer path each menu name controls.

MAIV	Path 1, Video A
MBIV	Path 1, Video B
MCIV	Path 2, Video A
MDIV	Path 2, Video B

Table 5-6: Audio Mixer Name Mapping

MAIV/MBIV/MCIV/MDIV

- *1AIV (Ch1 X Source Select)*
- *1BIV (Ch1 Y Source Select)*
- *2AIV (Ch2 X Source Select)*
- *2BIV (Ch2 Y Source Select)*
- *3AIV (Ch3 X Source Select)*
- *3BIV (Ch3 Y Source Select)*
- *4AIV (Ch4 X Source Select)*
- *4BIV (Ch4 Y Source Select)*
- *5AIV (Ch5 X Source Select)*
- *5BIV (Ch5 Y Source Select)*
- *6AIV (Ch6 X Source Select)*
- *6BIV (Ch6 Y Source Select)*
- *7AIV (Ch7 X Source Select)*
- *7BIV (Ch7 Y Source Select)*
- *8AIV (Ch8 X Source Select)*
- *8BIV (Ch8 Y Source Select)*
- *9AIV (Ch9 X Source Select)*
- *9BIV (Ch9 Y Source Select)*
- *AAIV (Ch10 X Source Select)*
- *ABIV (Ch10 Y Source Select)*
- *BAIV (Ch11 X Source Select)*
- *BBIV (Ch11 Y Source Select)*
- *CAIV (Ch12 X Source Select)*
- *CBIV (Ch12 Y Source Select)*
- *DAIV (Ch13 X Source Select)*
- *DBIV (Ch13 Y Source Select)*
- *EAIV (Ch14 X Source Select)*
- *EBIV (Ch14 Y Source Select)*
- *FAIV (Ch15 X Source Select)*
- *FBIV (Ch15 Y Source Select)*
- *GAIV (Ch16 X Source Select)*
- *GBIV (Ch16 Y Source Select)*

For each output channel, the audio can be set to:

NRML – The audio channel phase is maintained.

INVT – The audio channel phase is inverted 180°.

This setting is intended primarily to do a software correct for wiring errors in the path. The default and normal operating state is NRML.

5.6. VIDEO PROCESSOR CONTROL MENU

BLK1	Path 1 Black Level	Adjusts the black level of video for Path 1.
BLK2	Path 2 Black Level	Adjusts the black level of video for Path 2.
LUM1	Path 1 Luminance Level	Adjusts the luminance level of video for Path 1.
LUM2	Path 2 Luminance Level	Adjusts the luminance of video for Path 2.
CHR1	Path 1 Chroma Level	Adjusts the chroma of video for Path 1.
CHR2	Path 2 Chroma Level	Adjusts the chroma level of video for Path 2.
HUE1	Path 1 Hue Adjust	Adjusts the hue of video for Path 1 *(SD only control)*.
HUE2	Path 2 Hue Adjust	Adjusts the hue of video for Path 2 *(SD only control)*.

Table 5-7: Video Processor Menu Structure

5.6.1. Black Level Adjust

BLK1/BLK2
-128 to 128 (0)

This parameter sets the amount of black level adjustment. The maximum amount of adjustment is +/- 7.31 IRE. Each one unit increment is approximately 0.06 IRE of adjustment.

5.6.2. Luminance Level Adjust

LUM1/LUM2
-64 to 127 (0)

This parameter sets the amount of luminance level adjustment. The maximum amount of adjustment is +/- 6 dB. Each one unit increment is approximately 0.05 dB of adjustment on the gain side, and 0.10 dB on the attenuation side.

5.6.3. Chroma Level Adjust

CHR1/CHR2
-64 to 127 (0)

This parameter sets the amount of luminance level adjustment. The maximum amount of adjustment is +/- 6 dB. Each one unit increment is approximately 0.05 dB of adjustment on the gain side, and 0.10 dB on the attenuation side.

5.6.4. Hue Adjust *(SD Only)*

HUE1/HUE2
-200 to 200 (0)

This parameter sets the amount of hue adjustment. The maximum amount of adjustment is +/- 20°. Every 5 unit increment is approximately 0.5°.

5.7. SWITCHER NODE MENU

LOV1	Path 1 Loss of Video Mode	Sets the output mode when video is lost on Path 1.
LOV2	Path 2 Loss of Video Mode	Sets the output mode when video is lost on Path 2.
GPI1	Path 1 GPI Control	Enables or Disables GPI Control on Path 1.
GPI2	Path 2 GPI Control	Enables or Disables GPI Control on Path 2.
LNS1	Path 1 Line Sync Enable	Enables or Disables the Line Synchronizer on Path 1.
LNS2	Path 2 Line Sync Enable	Enables or Disables the Line Synchronizer on Path 2.
GSRC	Module Genlock Source	Controls the Genlock Source for the Module.
FCO1	Path 1 Fault Collection	Sets the Fault Collection state for Path 1.
FCO2	Path 2 Fault Collection	Sets the Fault Collection state for Path 2.

Table 5-8: Video Switcher Node Menu Structure

5.7.1. Loss of Video Mode

LOV1/LOV2
- *BLCK*
- *BLUE*

This parameter sets the output mode when a source with no video is routed to the output.

BLCK – Output video will be black.

BLUE – Output video will be blue.

5.7.2. GPI Control Mode

GPI1/GPI2
DISA
MOD1
MOD2
MOD3
MOD4
MOD5
MOD6

This parameter sets whether or not the GPI's control the output video routing.

MOD1 – The GPI states control the output video routing, bypassing manual or automatic control. A LOW GPI will select Video 1, a HIGH GPI will select Video 2.

MOD2 – The opposite of MOD1. The GPI states control the output video routing, bypassing manual or automatic control. A LOW GPI will select Video 2, a HIGH GPI will select Video 1.

MOD3 – Sets the GPI's as a global control. GPI1 will switch to Input 2 on both ACO paths, GPI2 will switch to Input 1 on both ACO paths. If one of the paths is not set to Mode 3, it will not switch.

MOD4 – The same as MOD1, but if in Auto Switch (Back) mode, the unit will switch if the input selected by GPI is lost.

MOD5 – MOD6 – Not used

DISA – The GPI's are not used.

5.7.3. Line Synchronizer Enable

LNS1/LNS2
OFF
ON

This parameter sets whether or not the line synchronizer is enabled out the output.

ON – Output video is fed through the line synchronizer. Output timing will not be affected by video switches, but inputs must be timed within ½ of a line of reference or they will be offset on the output.

OFF – Output video is not fed through the line synchronizer. Output timing will be affected by switches, and the switch will not be clean unless the two signals are synchronous to the reference, and the switch line is set correctly.

5.7.4. Genlock Source Control

GSRC
RFIN
FRF1
FRF2

This parameter sets which input the module will use for genlock.

RFIN – The GLCK BNC on the module rear plate will be used.

FRF1 – Frame Reference Input 1 will be used.

FRF2 – Frame Reference Input 2 will be used.

If no signal is present on the selected source, the output timing will be derived from the selected routed input. This will prevent the line synchronizer from working properly.

5.7.5. Fault Collection Mode

FCO1/FCO2
INDI
COLE

This parameter sets the fault collection mode for determining what puts a video path into fault.

INDI – Path will be in fault if any one of the monitored parameters goes into fault.

COLE – Path will be in fault if the collection of faults defined in Section 5.9 is alarmed.

5.8. FAULT DURATION MENU

BD11	Input 1 Black Duration	Sets the length of Video Black Duration for a fault on Input 1.
BD12	Input 2 Black Duration	Sets the length of Video Black Duration for a fault on Input 2.
NL11	Input 1 Noise Level	Sets the length of Video Noise Level for a fault on Input 1.
NL12	Input 2 Noise Level	Sets the length of Video Noise Level for a fault on Input 2.
FD11	Input 1 Freeze Duration	Sets the length of Video Freeze Duration for a fault on Input 1.
FD12	Input 2 Freeze Duration	Sets the length of Video Freeze Duration for a fault on Input 2.
VD11	Input 1 Video Error Duration	Sets the length of Video Error Duration for a fault on Input 1.
VD12	Input 2 Video Error Duration	Sets the length of Video Error Duration for a fault on Input 2.
OL11	Input 1 Audio Over Level	Sets the Audio Over Level for a fault on Input 1.
OL12	Input 2 Audio Over Level	Sets the Audio Over Level for a fault on Input 2.
OD11	Input 1 Audio Over Duration	Sets the length of Audio Over Duration for a fault on Input 1.
OD12	Input 2 Audio Over Duration	Sets the length of Audio Over Duration for a fault on Input 2.
SL11	Input 1 Audio Silence Level	Sets the Audio Silence Level for a fault on Input 1.
SL12	Input 2 Audio Silence Level	Sets the Audio Silence Level for a fault on Input 2.
SD11	Input 1 Audio Silence Duration	Sets the length of Audio Silence Duration for a fault on Input 1.
SD12	Input 2 Audio Silence Duration	Sets the length of Audio Silence Duration for a fault on Input 2.

5.8.1. Video Black Duration

BD11/BD12
1 to 2499 (22)

This parameter sets the number for frames of black video detected before a black video alarm is generated.

The range is from 4 to 9996 frames, with the default being 88 frames. Each one unit value on the card edge is 4 frames.

5.8.2. Picture Noise Level

NL11/NL12
1 to 10 (9)

This parameter sets the approximate level of noise expected in the video signal feed, it is used by the freeze detect feature to distinguish motion from background noise on top of a video feed.

As a guide, the range of options available from min to max is:
1 = digital freeze (no noise on top of frozen picture)
10 = 40 dB SNR

5.8.3. Picture Freeze Duration

FD11/FD12
1 to 2499 (75)

This parameter sets the duration, in number of frames, of video activity under the picture noise level that is considered a fault.

The range is from 6 to 9998 frames, with the default being 302 frames. Each one unit value on the card edge is 4 frames

5.8.4. Video Error Duration

VD11/VD12
0 to 900 (30)

This parameter sets the number for frames of a video error (loss or TRS/lock on the input) before a video error alarm is raised.

5.8.5. Audio Over Level

OL11/OL12
0 to 120 (-24)

This parameter sets the level threshold for an audio over fault.

The range is from -30 to 0 dBFS, with the default being – 6 dBFS. Each one unit value on the card edge is 0.25 dBFS.

5.8.6. Audio Over Duration

OD11/OD12
3 to 255 (60)

This parameter sets the number of samples of audio over before an audio over fault is generated.

5.8.7. Audio Silence Level

SL11/SL12
-384 to -80 (-240)

This parameter sets the level threshold for an audio silence fault.

The range is from -96 to -20 dBFS, with the default being – 60 dBFS. Each one unit value on the card edge is 0.25 dBFS.

5.8.8. Audio Silence Duration

SD11/SD12
1 to 254 (20)

This parameter sets the number of samples of audio silence before an audio silence fault is generated.

The range is from 0.5 to 127 seconds. Each one unit value on the card edge is 0.5 seconds.

5.9. ALARM SELECT MENU

The *Alarm Select Menu* sets the conditions under which the module will generate a fault on the video signal that would trigger a switch in *Auto Switch* or *Auto Switch Back* modes.

The alarms selected in this section are the same as defined in section 5.8.

FD11	Input 1 Fault Duration	Sets the number of frames of error before an alarm on Input 1.
FD12	Input 2 Fault Duration	Sets the number of frames of error before an alarm on Input 2.
FL11	Input 1 Fault Logic	Sets whether individual or collective faults are used to raise an alarm on Input 1.
FL12	Input 2 Fault Logic	Sets whether individual or collective faults are used to raise an alarm on Input 2.
VL11	Input 1 Video Loss Select	Sets whether to fault on Video Loss on Input 1.
VL12	Input 2 Video Loss Select	Sets whether to fault on Video Loss on Input 2.
VF11	Input 1 Video Freeze Select	Sets whether to fault on Video Freeze on Input 1.
VF12	Input 2 Video Freeze Select	Sets whether to fault on Video Freeze on Input 2.
VB11	Input 1 Video Black Select	Sets whether to fault on Video Black on Input 1.
VB12	Input 2 Video Black Select	Sets whether to fault on Video Black on Input 2.
AL1(1-4)	Input 1 Group 1-4 Audio Loss	Sets whether to fault on Group Audio Loss on Input 1.
AL2(1-4)	Input 1 Group 1-4 Audio Loss	Sets whether to fault on Group Audio Loss on Input 2.
AO1(1-8)	Input 1 Audio Pair 1-8 Audio Over	Sets whether to fault on Channel Pair Audio Over on Input 1.
AO2(1-8)	Input 2 Audio Pair 1-8 Audio Over	Sets whether to fault on Channel Pair Audio Over on Input 2.
AS1(1-8)	Input 1 Audio Pair 1-8 Audio Silence	Sets whether to fault on Channel Pair Audio Silence on Input 1.
AS2(1-8)	Input 1 Audio Pair 1-8 Audio Silence	Sets whether to fault on Channel Pair Audio Silence on Input 2.

Table 5-9: Alarm Select Menu Structure

5.9.1. Fault Duration

FD11/FD12
1 to 254 (30)

This parameter sets the number of frames that the error condition is held once a fault is generated.

5.9.2. Fault Logic

FL11/FL12
OR
AND

This parameter sets the logic condition for fault collection.

OR – Any one of the monitored faults occurring will cause the fault condition to become active.

AND – Only when all the monitored faults occur will the fault condition become active.

5.9.3. Video Loss Select

VL11/VL12
ON
OFF

This parameter sets whether video loss is used to determine a fault condition.

ON – The parameter is used in determining a fault condition.

OFF – The parameter is not used in determining a fault condition.

5.9.4. Video Freeze Select

VF11/VF12
ON
OFF

This parameter sets whether video freeze is used to determine a fault condition.

ON – The parameter is used in determining a fault condition.

OFF – The parameter is not used in determining a fault condition.

5.9.5. Video Black Select

VB11/VB12
ON
OFF

This parameter sets whether video black is used to determine a fault condition.

ON – The parameter is used in determining a fault condition.

OFF – The parameter is not used in determining a fault condition.

5.9.6. Audio Loss Select

AL1(1-4)/AL2(1-4)
ON
OFF

This parameter sets whether the presence of audio groups 1-4 are used to determine a fault condition.

ON – The parameter is used in determining a fault condition.

OFF – The parameter is not used in determining a fault condition.

5.9.7. Audio Over Select

AO1(1-8)/AO2(1-8)
ON
OFF

This parameter sets whether audio over on channel pairs 1-8 are used to determine a fault condition

1 = Channels 1&2
2 = Channels 3&4
3 = Channels 5&6
4 = Channels 7&8
5 = Channels 9&10
6 = Channels 11&12
7 = Channels 13&14
8 = Channels 15&16

ON – The parameter is used in determining a fault condition.

OFF – The parameter is not used in determining a fault condition.

5.9.8. Audio Silence Select

AS1(1-8)/AS2(1-8)
ON
OFF

This parameter sets whether audio silence on channel pairs 1-8 are used to determine a fault condition

1 = Channels 1&2
2 = Channels 3&4
3 = Channels 5&6
4 = Channels 7&8
5 = Channels 9&10
6 = Channels 11&12
7 = Channels 13&14
8 = Channels 15&16

ON – The parameter is used in determining a fault condition.

OFF – The parameter is not used in determining a fault condition.

5.10. DISPLAY ORIENTATION MENU

DISP
VERT
HORZ

This parameter sets display orientation of the card-edge LED.

VERT – The display is oriented vertically. Ideal for use in a 3RU 7700/7800FR.

HORZ – The display is oriented horizontally. Ideal for use in a 1RU or Standalone frame.

5.11. VERSION INFORMATION MENU

This menu shows the currently loaded firmware version.

5.12. FACTORY RESET MENU

FRST
YES
NO

This parameter performs a factory reset on the module, returning all settings to default values.

6. VISTALINK® REMOTE MONITORING/CONTROL

6.1. WHAT IS VISTALINK®?

VistaLINK® is Evertz remote monitoring and configuration platform which operates over an Ethernet network using Simple Network Management Protocol (SNMP). SNMP is a standard computer network protocol that enables different devices sharing the same network to communicate with each other. VistaLINK® provides centralized alarm management, which monitors, reports, and logs all incoming alarm events and dispatches alerts to all the VLPro Clients connected to the server. Card configuration through VistaLINK® PRO can be performed on an individual or multi-card basis using simple copy and paste routines, which reduces the time to configure each module separately. Finally, VistaLINK® enables the user to configure devices in the network from a central station and receive feedback that the configuration has been carried out.

There are 3 components of SNMP:

1. An SNMP manager, also known as a Network Management System (NMS), is a computer running special software that communicates with the devices in the network. Evertz VistaLINK®Pro Manager graphical user interface (GUI), third party or custom manager software may be used to monitor and control Evertz VistaLINK® enabled fiber optic products.

2. Managed devices (such as 7700ACO2-HD), each with a unique address (OID), communicate with the NMS through an SNMP Agent. The 7700ACO2-HD has its own on board SNMP Agent.

3. A virtual database, known as the Management Information Base (MIB), lists all the variables being monitored, which both the Manager and Agent understand. Please contact Evertz for further information about obtaining a copy of the MIB for interfacing to a third party Manager/NMS.

6.2. VISTALINK® CONFIGURATION

The module has three main configuration nodes, as shown in Figure 6-1. The main node (displayed as the modules IP address), and the two ACO processing nodes (displayed as ACO 1/ACO 2 plus any options).

Only the menu options from the main node and ACO 1 node will be shown (ACO 2 is identical to ACO 1).

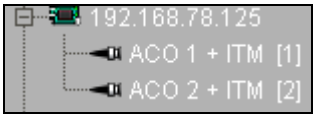


Figure 6-1: Module Nodes

6.3. MAIN MODULE NODE

6.3.1. General

The ***General*** tab, as shown in Figure 6-2, shows miscellaneous parameters of the module. These parameters are listed below:

Card Type:	Indicates the product model number of the card (including installed options).
Detected Genlock Standard:	Indicates the currently detected genlock reference standard.
FPGA Build Number	Indicates the FPGA build number.
Firmware Version:	Indicates the currently installed firmware version.
Creation Date:	Indicates the build date of the firmware version.
Board Name:	Indicates the product hardware version of the module.
Board Revision:	Indicates the hardware version of the module.
Board Serial Number:	Indicates the physical serial number of the module.
Board Build Number:	Indicates the physical board build of the module.

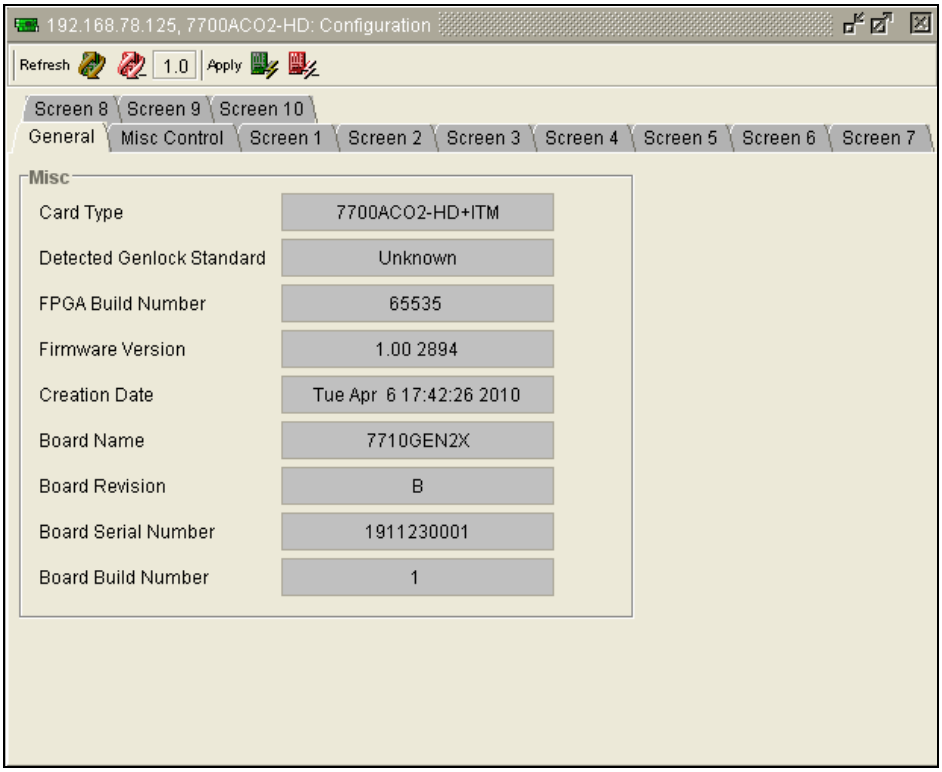


Figure 6-2: General Tab

6.3.2. Misc Control

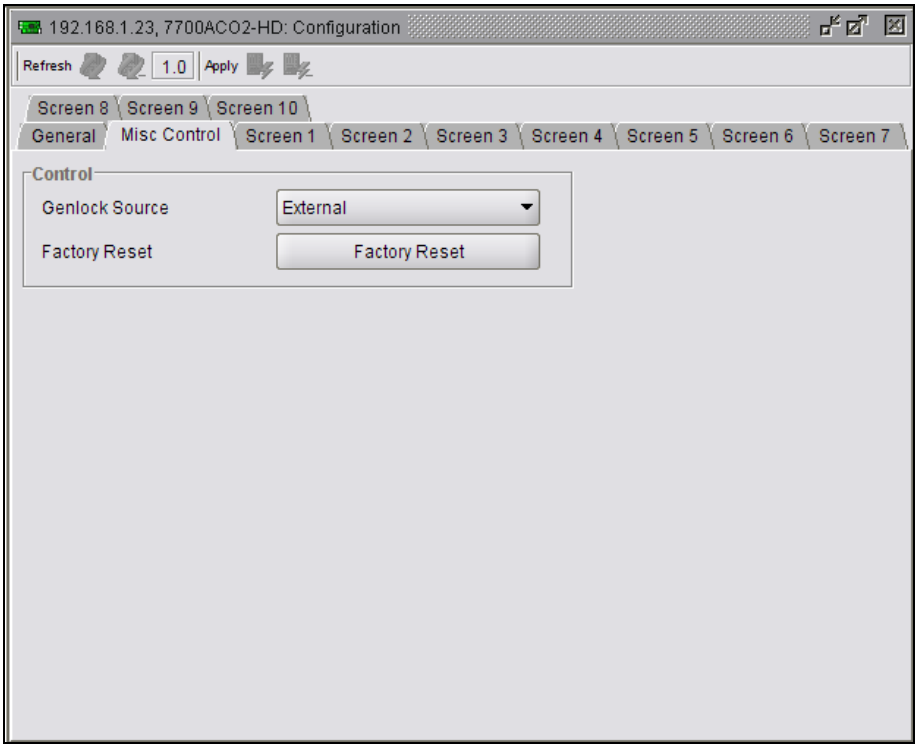


Figure 6-3: Misc Control Tab

6.3.2.1. Genlock Source

The **Genlock Source** combo box sets which input source the module will use for genlock. Table 6-1 describes the options and their function:

External	The GLCKBNC on the module rear-plate will be used.
Ref1	Frame Reference Input 1 will be used.
Ref2	Frame Reference Input 2 will be used.

Table 6-1: Genlock Source Menu Options

If no signal is present on the selected source, the output timing will be derived from the selected routed input. This will prevent the line synchronizer from working properly.

6.3.2.2. Factory Reset

The **Factory Reset** button performs a factory reset on the module, returning all settings to default values.

6.3.3. Screen 1

The **Screen 1** tab, shown in Figure 6-4, configures the Screen 1 trouble-slide. The trouble-slide consists of a text box and a user-entered text message.

The video screen is divided into 12 lines. A text box can begin on any of the lines and go from one line to the bottom of the raster. Text entered on a line will be centered. To enter text on a line, click on it to select (the line will become highlighted white), and then begin to enter text.

For brevity, only “Screen 1” will be explained in the manual. The Screen 2 to 10 tabs have an identical menu.

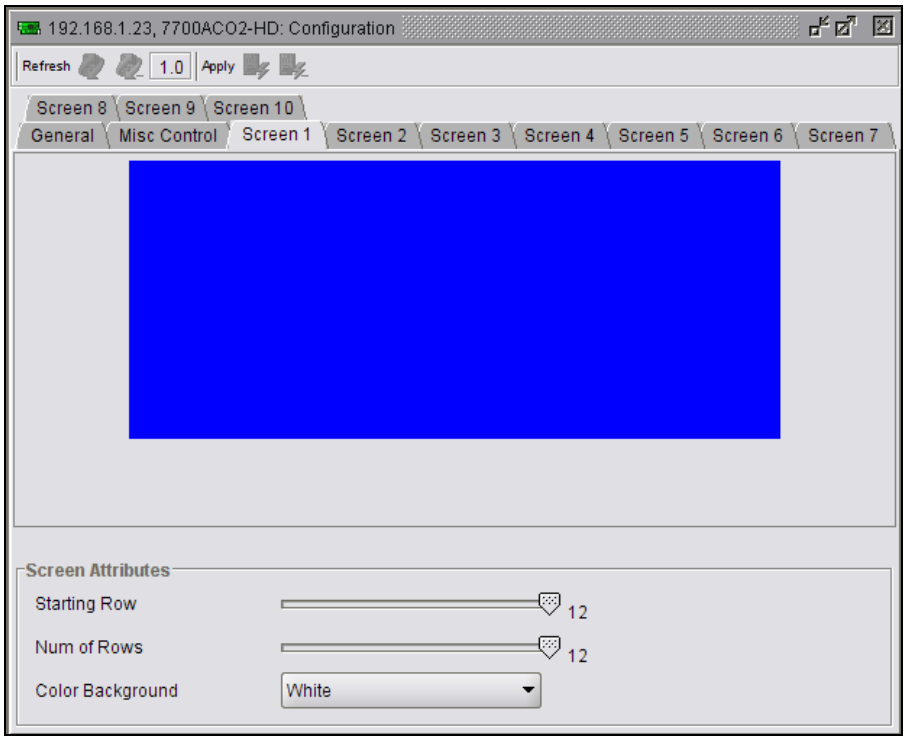


Figure 6-4: Screen 1 Tab

6.3.3.1. Starting Row

The **Starting Row** slider sets the starting row for the text box. The parameter is adjustable between 1 and 12.

6.3.3.2. Num of Rows

The **Num of Rows** slider sets the number of rows for the text box. The parameter is adjustable between 1 and 12.

6.3.3.3. Color Background

The **Color Background** combo box sets which color the trouble screen will be. Table 6-2 lists the color options available:

White
Yellow
Cyan
Green
Magenta
Red
Blue
Black

Table 6-2: Color Background Menu Options

6.3.4. Thumbnail (+TL Only)

The Thumbnail tab allows configuration of Thumbnails from the module.

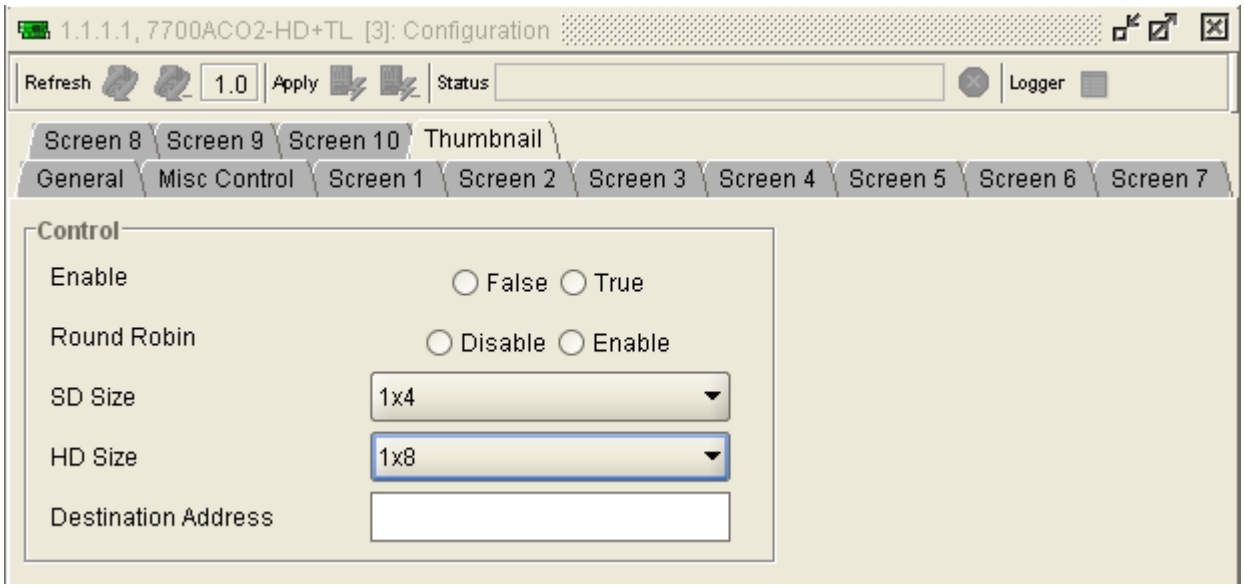


Figure 6-5: Thumbnail Tab

6.3.4.1. Enable

Turns the Thumbnail generator on or off.

6.3.4.2. Round Robin

Sets the operating mode for the Thumbials. When Disabled, each input will have a Thumbnail sent. When Enabled, there will be one Thumbnail which will cycle through all four inputs.

6.3.4.3. SD Size

Sets the size of the Thumbnail when the input is SD.

6.3.4.4. HD Size

Sets the size of the Thumbnail when the input is HD.

6.3.4.5. Destination Address

Sets the IP address of the Thumbnail server that will receive and process the Thumbnails.

6.3.5. SLKE Configuration (-SLKE Only)

The SLKE Configuration tab allows configuration of the on-board H.264 encoder.

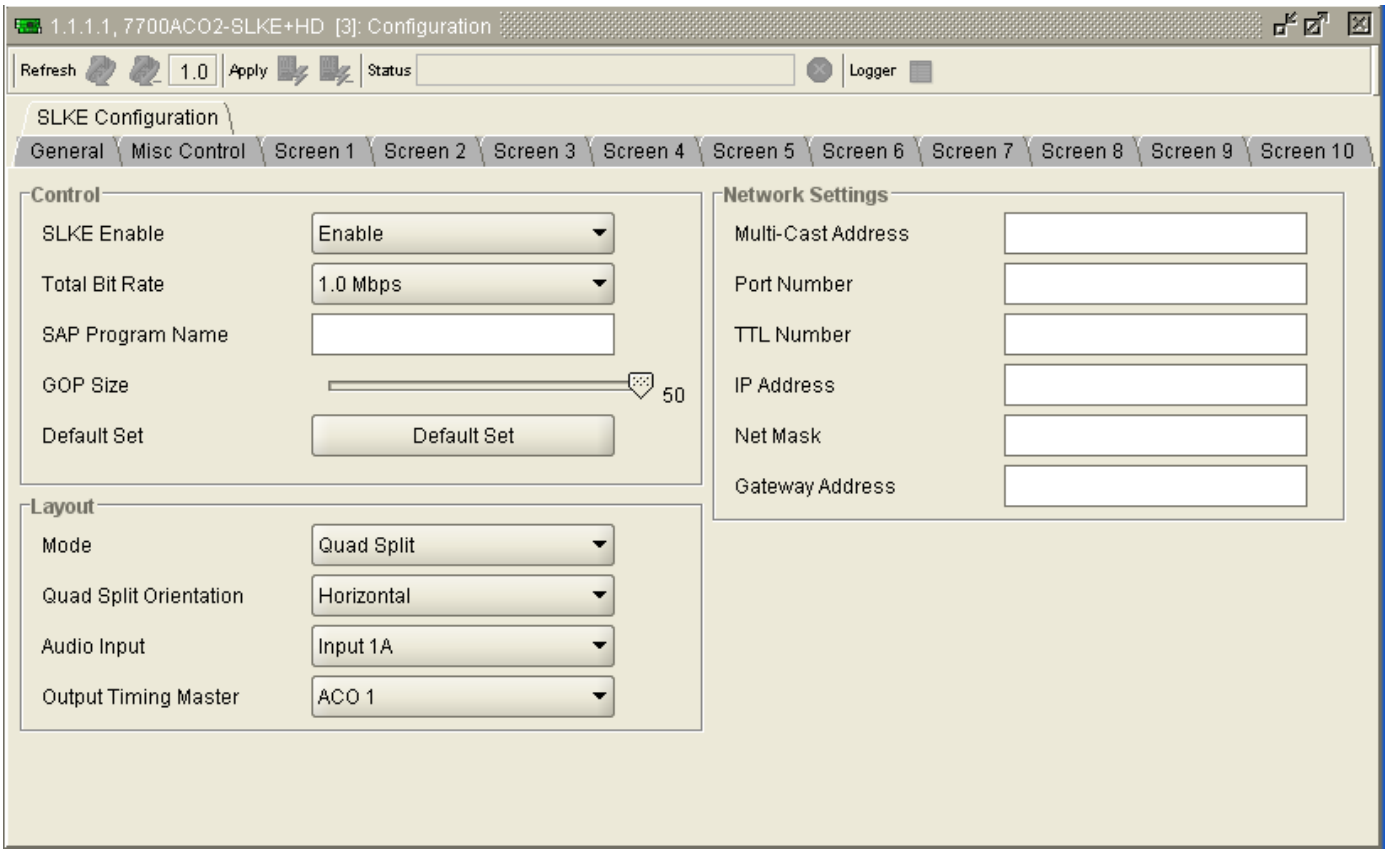


Figure 6-6: SLKE Configuration Tab

Control:

6.3.5.1. SLKE Enable

Enables or disables the H.264 encoded output.

6.3.5.2. Total Bit Rate

Sets the bit rate of the encoded H.264 stream, from 1.0 to 10.0 Mbps in steps of 0.5 Mbps.

6.3.5.3. SAP Program Name

Sets the SAP Program Name broadcast in association with the encoded output.

6.3.5.4. GOP Size

Sets the GOP (Group of Pictures) size of the encoded stream, from 10-50.

Layout:

6.3.5.5. Mode

Sets the encoded picture layout. Quad Split will put all four inputs on the output, downscaling each to fit in a quadrant. Input 1-4 will encode the chosen input as the stream (downscaling if HD).

6.3.5.6. Quad Split Orientation

Sets the orientation of the Quad Split. When set to Horizontal, ACO1 inputs will be on the top (ACO1A then ACO1B). When set to Vertical, ACO1 inputs will be on the left (ACO1A on top, ACO1B on the bottom), and vice versa for ACO2.

6.3.5.7. Audio Input

Sets which inputs audio will be used for the encode.

6.3.5.8. Output Timing Master

Sets which ACO's timing plane will be used for the encoders timing.

Network Settings:

6.3.5.9. Multicast Address

Sets the address to stream out on. For unicast operation, set the address of the receiving device (decoder). For multicast, set a proper multicast address (in the range of 224.0.0.0 to 239.255.255.255).

6.3.5.10. Port Number

Sets the port to stream out on. It is better to use a higher port number (above 1000) to avoid conflict with established port numbers.

6.3.5.11. TTL Number

Sets the TTL (Time-To-Live) of the encoded packets.

6.3.5.12. IP Address

Sets the IP address of the 7700ACO2-SLKE(-HD).

6.3.5.13. Net Mask

Sets the net mask for the network the 7700ACO2-SLKE(-HD) is on.

6.3.5.14. Gateway Address

Sets the gateway address of the network the 7700ACO2-SLKE(-HD) is on.

6.4. ACO 1 CONTROL

6.4.1. Module Control

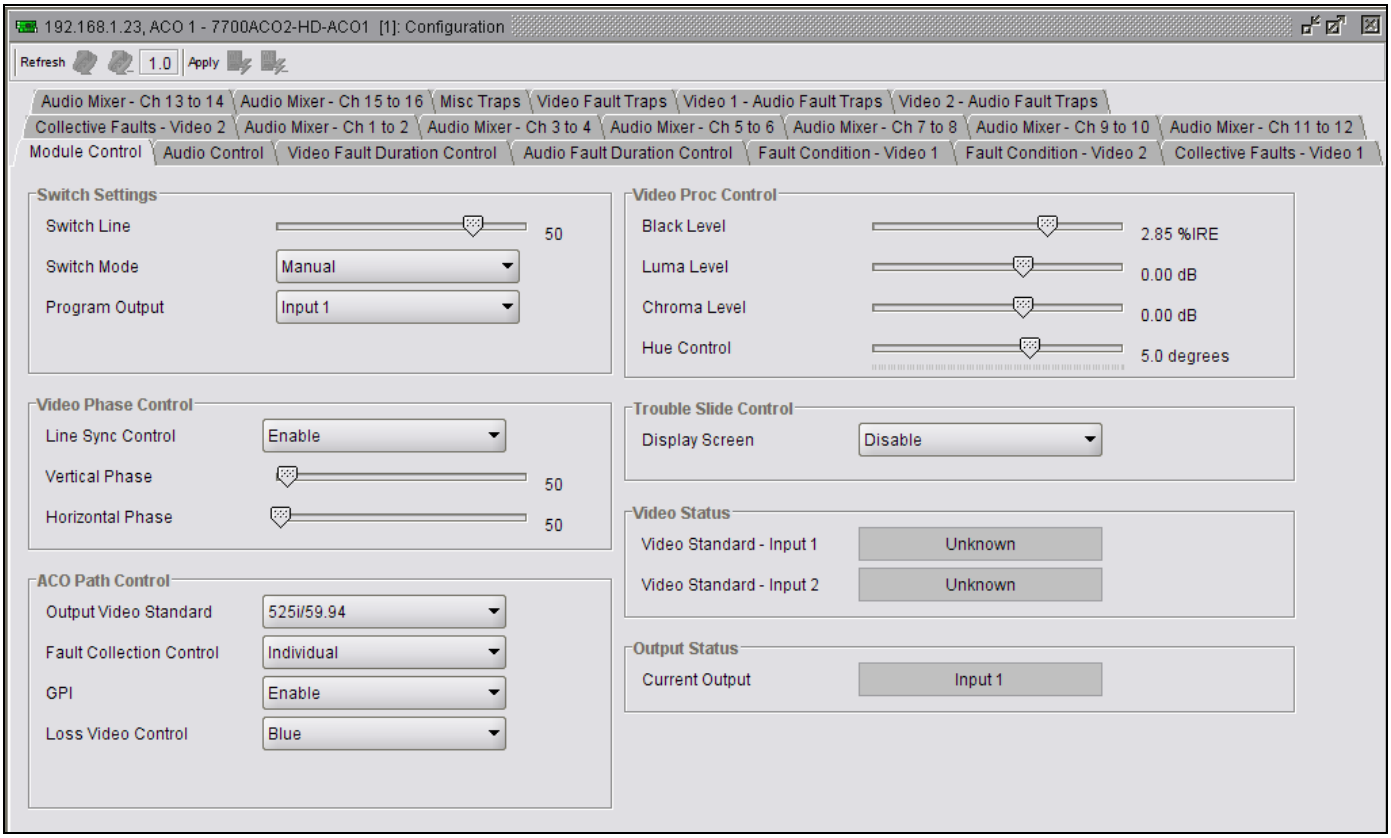


Figure 6-7: Module Control Tab

6.4.1.1. Switch Line

The **Switch Line** slider sets the switching line for video switches. The available range is from lines 1 to 64.

6.4.1.2. Switch Mode

The **Switch Mode** combo box sets the switching behavior of the 7700ACO2-HD. Table 6-3 describes the options and their function:

Manual	The module will be in manual switch mode. The Program Output setting will be used to determine which signal is sent to the output, regardless of signal validity.
Auto Switch Back	The module will be in auto switch back mode. Input A is the primary input. If it becomes invalid, the output will switch to Input B. If Input A returns to valid, then the output will switch back to Input A.
Auto Switch	The module will be in auto switch mode. It will retain its current route state until that signal becomes invalid, at which point it will switch to the other input.

Table 6-3: Switch Mode Menu Options

6.4.1.3. Program Output

The **Program Output** combo box sets the output for the 7700ACO2-HD when the switch mode is set to manual. The available options are Input 1 (the A input) or Input 2 (the B input).

6.4.1.4. Line Sync Control

The ***Line Sync Control*** combo box sets whether or not the line synchronizer is enabled out the output. Table 6-4 describes the options and their function:

ON	Output video is fed through the line synchronizer. Output timing will not be affected by video switches, but inputs must be timed within ½ of a line of reference or they will be offset on the output.
OFF	Output video is not fed through the line synchronizer. Output timing will be affected by switches, and the switch will not be clean unless the two signals are synchronous to the reference, and the switch line is set correctly.

Table 6-4: Line Sync Control Menu Options

6.4.1.5. Vertical Phase

The **Vertical Phase** slider sets the vertical (by number of lines) phase offset of the output video with respect to the path's reference source. This control is only applicable if the line synchronization parameter is enabled. The range of the control is dependent on the operating video standard.

6.4.1.6. Horizontal Phase

The **Horizontal Phase** slider parameter sets the horizontal (by number of samples) phase offset of the output video with respect to the path's reference source. This control is only applicable if the line synchronization parameter is enabled. The range of the control is dependent on the operating video standard.

6.4.1.7. Output Video Standard

The **Output Video Standard** combo box sets the output standard. The Video Standard must be set correctly in order to properly operate. If the selected and input video standards mismatch, the output video will be distorted**.** Table 6-5 shows the options available:

525/59.94
625/50
1080i/59.94
720p/59.94
1080i/50
720p/50

Table 6-5: Output Video Standard Menu Options

6.4.1.8. Fault Collection Control

The **Fault Collection Control** combo box sets the fault collection mode for determining what puts a video path into fault. Table 6-6 describes the options and their function:

Individual	Path will be in fault if any one of the monitored parameters goes into fault.
Collective	Path will be in fault if the collection of faults defined in Section 5.9 is alarmed.

Table 6-6: Fault Collection Control Menu Options

6.4.1.9. GPI

The **GPI** combo box sets whether or not the GPI's control the output video routing. Table 6-7 describes the options and their function:

Mode 1	The GPI states control the output video routing, bypassing manual or automatic control. A LOW GPI will select Video 1, a HIGH GPI will select Video 2.
Mode 2	The opposite of Mode 1. The GPI states control the output video routing, bypassing manual or automatic control. A LOW GPI will select Video 2, a HIGH GPI will select Video 1.
Mode 3	Sets the GPI's as a global control. GPI1 will switch to Input 2 on both ACO paths, GPI2 will switch to Input 1 on both ACO paths. If one of the paths is not set to Mode 3, it will not switch.
Mode 4	The same as Mode 1, but if in Auto Switch (Back) mode, the unit will switch if the input selected by GPI is lost.
Mode 5-6	Not used
Disable	The GPI's are not used.

Table 6-7: GPI Menu Options

6.4.1.10. Loss of Video Control

The **Loss of Video Control** combo box sets the output colour when a source with no video is routed to the output. The available choices are *Black* and *Blue*.

6.4.1.11. Video Proc Control

Under the Video Proc Control sub-box, there are controls to adjust the *Black*, *Luma* and *Chroma* Levels and the *Hue* (*SD Only*) on the output video.

6.4.1.12. Display Screen

The **Display Screen** combo box sets trouble-slide to use when the router video format is in fault. The options are *Disable* or *Screen's 1* to *10*.

6.4.1.13. Video Standard – Input 1

The **Video Standard – Input 1** text field displays the currently detected video standard on the A input. This field will show *Unknown* if the detected format is not valid.

6.4.1.14. Video Standard – Input 2

The **Video Standard – Input 2** text field displays the currently detected video standard on the B input. This field will show *Unknown* if the detected format is not valid.

For both Input 1 and Input 2, if a known valid signal is applied, but the display is still showing *Unknown*, possible causes are:

1. Wrong Standard Selected for Output Video Standard; or

2. The loop-through on the video input is not terminated properly.

6.4.1.15. Current Output

The **Current Output** text field displays which input is being routed to the output.

6.4.2. Audio Control

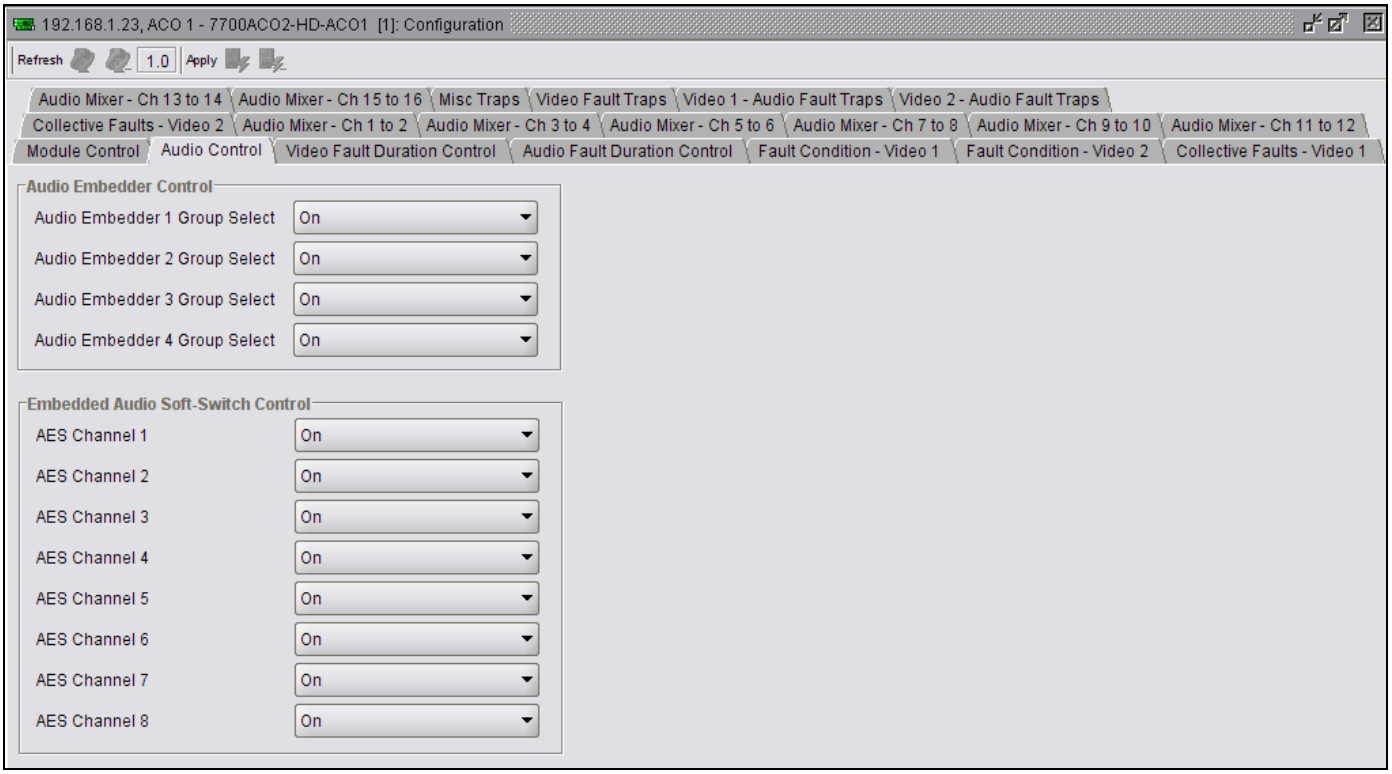


Figure 6-8: Audio Control Tab

6.4.2.1. Audio Embedder Control

The **Audio Embedder Control** sub-box allows for control to enable or disable audio processing for individual Audio Groups 1 to 4 on the output video.

When this option is enabled, it turns on IntelliGain (if installed), the Audio Mixer and Softswitch features.

6.4.2.2. Embedded Audio Soft-Switch Control

The **Embedded Audio Soft-Switch Control** sub-box allows for control to enable or disable Soft-Switch on individual audio channel pairs 1 to 8. Please note that AES Channel 1 is equivalent to embedded audio channels 1 & 2 and AES Channel 2 is equivalent to embedded audio channels 3 & 4, etc.

6.4.3. Video Fault Duration Control

The **Video Fault Duration Control** tab, shown in Figure 6-7, allows for control over the thresholds and durations under which video alarms will be generated.

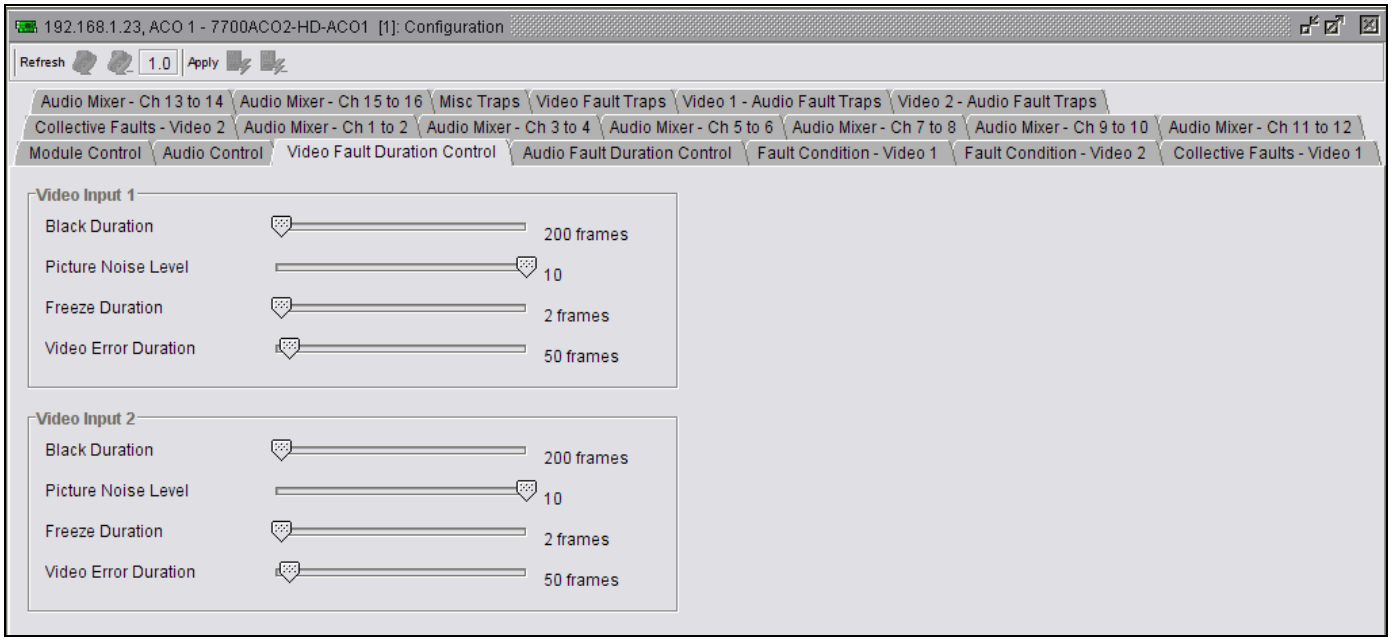


Figure 6-9: Video Fault Duration Control Tab

6.4.3.1. Black Duration

The **Black Duration** slider sets the number for frames of black video detected before a black video alarm is generated.

6.4.3.2. Picture Noise Level

The **Picture Noise Level** slider sets the approximate level of noise expected in the video signal feed, it is used by the freeze detect feature to distinguish motion from background noise on top of a video feed.

As a guide, the range of options available from min to max is:
1 = digital freeze (no noise on top of frozen picture)
10 = 40 dB SNR

6.4.3.3. Freeze Duration

The **Freeze Duration** slider sets the number for frames of picture freeze before a picture freeze alarm is generated.

6.4.3.4. Video Error Duration

The **Video Error Duration** slider sets the number for frames of a video error (loss or TRS/lock on the input) before a video error alarm is raised.

6.4.4. Audio Fault Duration Control

The **Audio Fault Duration Control** tab, shown in Figure 6-8, allows for control over the thresholds and durations under which audio alarms will be generated.

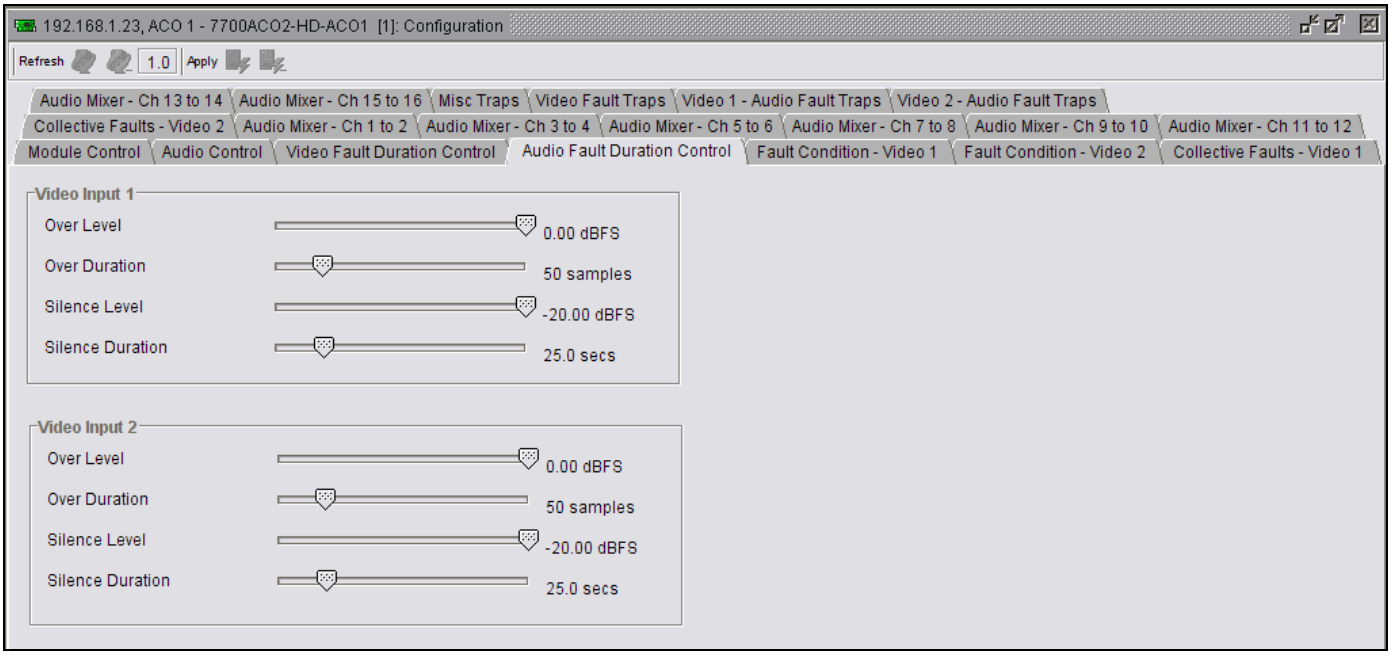


Figure 6-10: Audio Fault Duration Control Tab

6.4.4.1. Over Level

The **Over Level** slider sets the level threshold for an audio over fault.

6.4.4.2. Over Duration

The **Over Duration** slider sets the number of samples that the audio must be over for an audio over fault.

6.4.4.3. Silence Level

The **Silence Level** slider sets the level threshold for an audio silence fault.

6.4.4.4. Silence Duration

The **Silence Duration** slider sets the time of audio silence before an audio silence fault is generated.

6.4.5. Fault Condition – Video 1

The **Fault Condition – Video 1** tab, shown in Figure 6-9, controls which alarms are used to determine a 'Individual Fault' alarm on Video 1.

For brevity, only "Fault Condition – Video 1" will be explained in the manual. "Fault Condition – Video 2" has an identical menu.

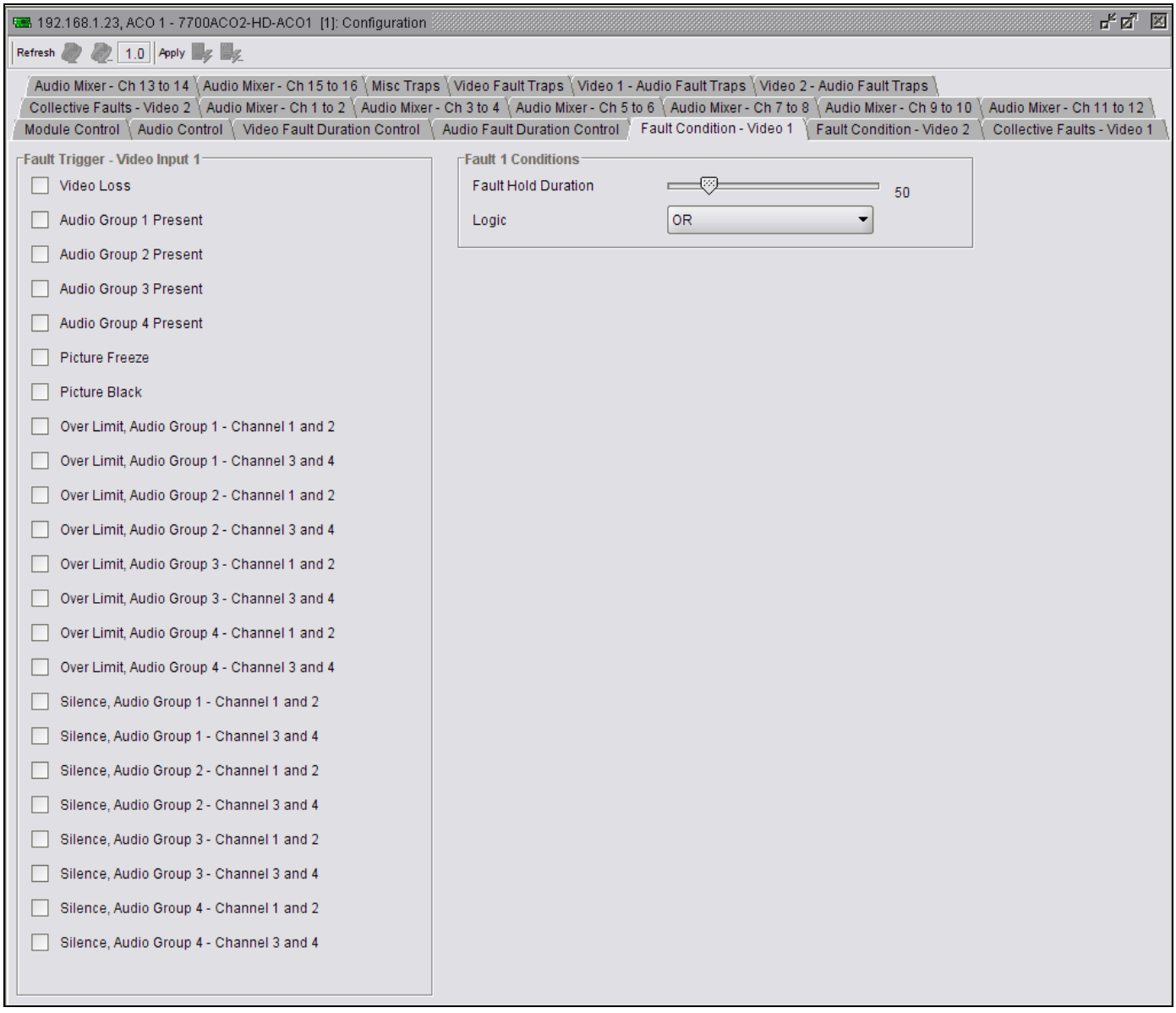

192.168.1.23, ACO 1 - 7700ACO2-HD-ACO1 [1]: Configuration
Refresh
1.0
Apply
Audio Mixer - Ch 13 to 14
Audio Mixer - Ch 15 to 16
Misc Traps
Video Fault Traps
Video 1 - Audio Fault Traps
Video 2 - Audio Fault Traps
Collective Faults - Video 2
Audio Mixer - Ch 1 to 2
Audio Mixer - Ch 3 to 4
Audio Mixer - Ch 5 to 6
Audio Mixer - Ch 7 to 8
Audio Mixer - Ch 9 to 10
Audio Mixer - Ch 11 to 12
Module Control
Audio Control
Video Fault Duration Control
Audio Fault Duration Control
Fault Condition - Video 1
Fault Condition - Video 2
Collective Faults - Video 1
Fault Trigger - Video Input 1
Video Loss
Audio Group 1 Present
Audio Group 2 Present
Audio Group 3 Present
Audio Group 4 Present
Picture Freeze
Picture Black
Over Limit, Audio Group 1 - Channel 1 and 2
Over Limit, Audio Group 1 - Channel 3 and 4
Over Limit, Audio Group 2 - Channel 1 and 2
Over Limit, Audio Group 2 - Channel 3 and 4
Over Limit, Audio Group 3 - Channel 1 and 2
Over Limit, Audio Group 3 - Channel 3 and 4
Over Limit, Audio Group 4 - Channel 1 and 2
Over Limit, Audio Group 4 - Channel 3 and 4
Silence, Audio Group 1 - Channel 1 and 2
Silence, Audio Group 1 - Channel 3 and 4
Silence, Audio Group 2 - Channel 1 and 2
Silence, Audio Group 2 - Channel 3 and 4
Silence, Audio Group 3 - Channel 1 and 2
Silence, Audio Group 3 - Channel 3 and 4
Silence, Audio Group 4 - Channel 1 and 2
Silence, Audio Group 4 - Channel 3 and 4
Fault 1 Conditions
Fault Hold Duration
50
Logic
OR

Figure 6-11: Fault Condition – Video 1 Tab

6.4.5.1. Fault Trigger – Video Input 1

The **Fault Trigger – Video Input 1** sub-box selects which faults will be pooled. To select a fault, check the checkbox beside it.

6.4.5.2. Fault Hold Duration

The **Fault Hold Duration** slider sets the number of frames that the error condition is held once a fault is generated.

6.4.5.3. Logic

The **Fault Hold Duration** slider sets the logic condition for fault collection. Table 6-8 describes the options and their function:

Or	Any one of the monitored faults occurring will cause the fault condition to become active.
And	Only when all the monitored faults occur will the fault condition become active.

Table 6-8: Logic Options

6.4.6. Collective Faults – Video 1

The **Collective Faults – Video 1** tab, shown in Figure 6-10, controls which alarms are used to determine a 'Collective Fault' alarm on Video 1. To select a fault, check the checkbox beside it.

For brevity, only "Collective Faults – Video 1" will be shown. "Collective Faults – Video 2" has an identical menu.

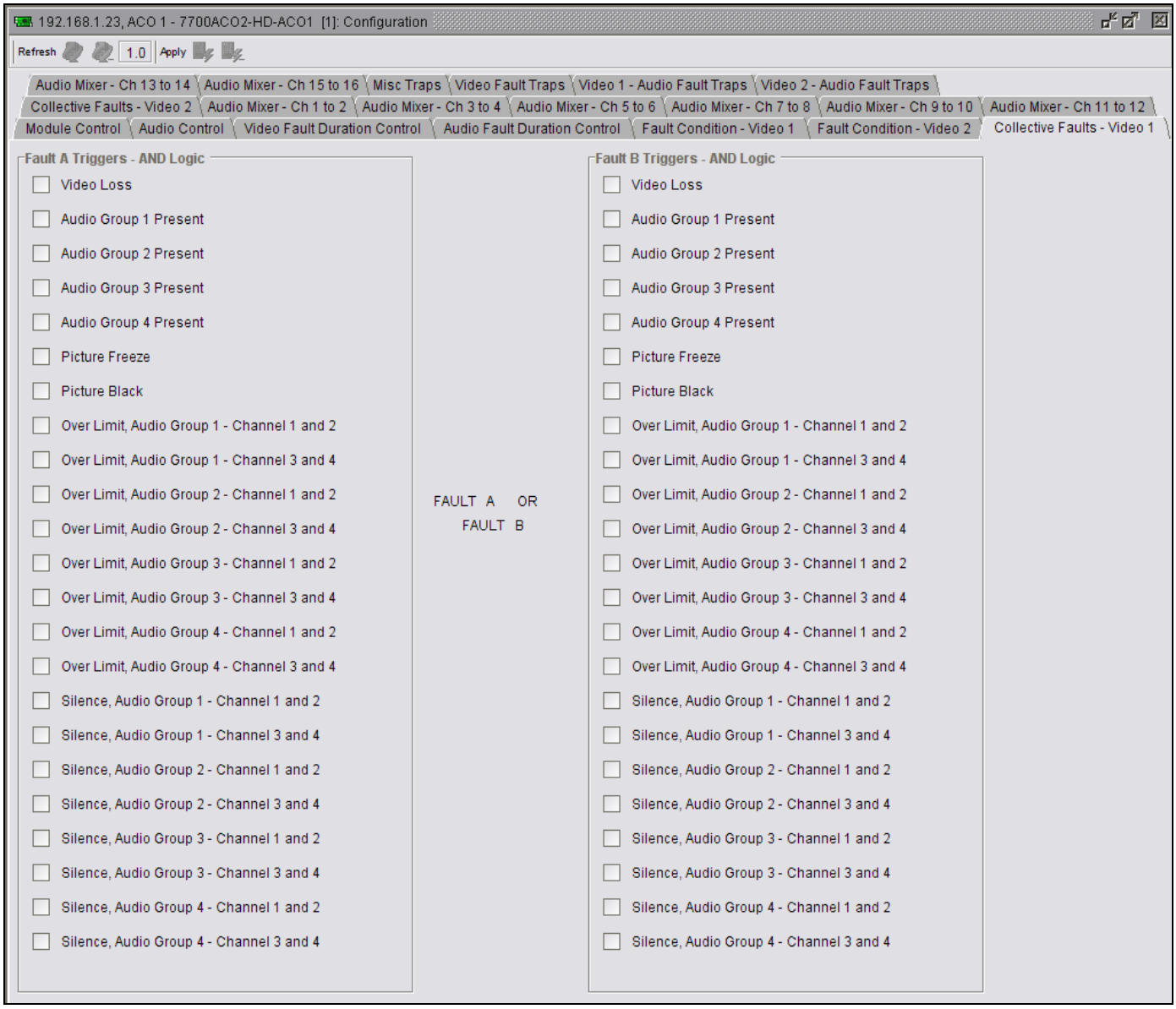

192.168.1.23, ACO 1 - 7700ACO2-HD-ACO1 [1]: Configuration
Refresh
1.0
Apply
Audio Mixer - Ch 13 to 14
Audio Mixer - Ch 15 to 16
Misc Traps
Video Fault Traps
Video 1 - Audio Fault Traps
Video 2 - Audio Fault Traps
Collective Faults - Video 2
Audio Mixer - Ch 1 to 2
Audio Mixer - Ch 3 to 4
Audio Mixer - Ch 5 to 6
Audio Mixer - Ch 7 to 8
Audio Mixer - Ch 9 to 10
Audio Mixer - Ch 11 to 12
Module Control
Audio Control
Video Fault Duration Control
Audio Fault Duration Control
Fault Condition - Video 1
Fault Condition - Video 2
Collective Faults - Video 1
Fault A Triggers - AND Logic
Video Loss
Audio Group 1 Present
Audio Group 2 Present
Audio Group 3 Present
Audio Group 4 Present
Picture Freeze
Picture Black
Over Limit, Audio Group 1 - Channel 1 and 2
Over Limit, Audio Group 1 - Channel 3 and 4
Over Limit, Audio Group 2 - Channel 1 and 2
Over Limit, Audio Group 2 - Channel 3 and 4
Over Limit, Audio Group 3 - Channel 1 and 2
Over Limit, Audio Group 3 - Channel 3 and 4
Over Limit, Audio Group 4 - Channel 1 and 2
Over Limit, Audio Group 4 - Channel 3 and 4
Silence, Audio Group 1 - Channel 1 and 2
Silence, Audio Group 1 - Channel 3 and 4
Silence, Audio Group 2 - Channel 1 and 2
Silence, Audio Group 2 - Channel 3 and 4
Silence, Audio Group 3 - Channel 1 and 2
Silence, Audio Group 3 - Channel 3 and 4
Silence, Audio Group 4 - Channel 1 and 2
Silence, Audio Group 4 - Channel 3 and 4
FAULT A OR
FAULT B
Fault B Triggers - AND Logic
Video Loss
Audio Group 1 Present
Audio Group 2 Present
Audio Group 3 Present
Audio Group 4 Present
Picture Freeze
Picture Black
Over Limit, Audio Group 1 - Channel 1 and 2
Over Limit, Audio Group 1 - Channel 3 and 4
Over Limit, Audio Group 2 - Channel 1 and 2
Over Limit, Audio Group 2 - Channel 3 and 4
Over Limit, Audio Group 3 - Channel 1 and 2
Over Limit, Audio Group 3 - Channel 3 and 4
Over Limit, Audio Group 4 - Channel 1 and 2
Over Limit, Audio Group 4 - Channel 3 and 4
Silence, Audio Group 1 - Channel 1 and 2
Silence, Audio Group 1 - Channel 3 and 4
Silence, Audio Group 2 - Channel 1 and 2
Silence, Audio Group 2 - Channel 3 and 4
Silence, Audio Group 3 - Channel 1 and 2
Silence, Audio Group 3 - Channel 3 and 4
Silence, Audio Group 4 - Channel 1 and 2
Silence, Audio Group 4 - Channel 3 and 4

Figure 6-12: Collective Faults – Video 1 Tab

6.4.7. Audio Mixer – Ch 1 to 2

For brevity, only “Audio Mixer – Ch 1 to 2” will be explained in the manual. The remaining “Audio Mixer – Ch X to Y” tabs are the same.

Each page contains the Video 1 (left side) and Video 2 (right side) Audio Mixers. The Video 1 mixer will be active on the output when the A input is being routed to the output and the Video 2 mixer will be active when the B input is being routed to the output.

For each individual channel, there is a 2x1 audio mixer. Each channel is a combination of an X source and a Y source. This allows for a mono-mix on a single channel, such as a voiceover. Normal use has the Y source muted, and the X source chosen to pass through the desired channel. The bottom of Figure 6-11 shows a single channel mixer stage.

For brevity, only the options for “X” fields will be explained in the manual. The “Y” fields’ menu and options are the same.

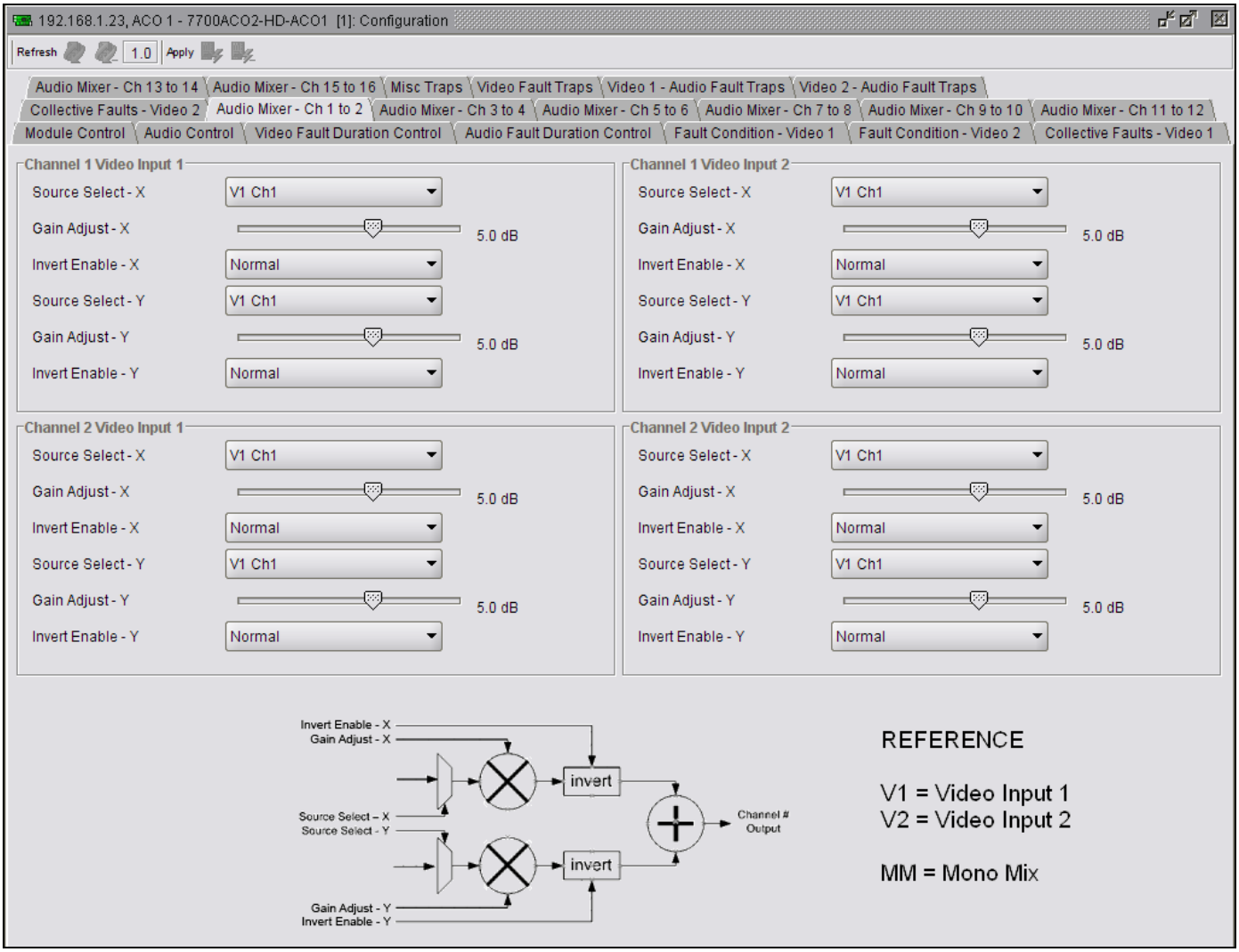


Figure 6-13: Audio Mixer – Ch 1 to 2 Tab

6.4.7.1. Source Select

The **Source Select** combo box sets the audio source to feed the component of the audio mixer for the selected channel. Table 6-9 describes the options and their meaning:

V1 Ch1/V2 Ch1	Video A/B Channel 1
V1 Ch2/V2 Ch2	Video A/B Channel 2
V1 Ch3/V2 Ch3	Video A/B Channel 3
V1 Ch4/V2 Ch4	Video A/B Channel 4
V1 Ch5/V2 Ch5	Video A/B Channel 5
V1 Ch6/V2 Ch6	Video A/B Channel 6
V1 Ch7/V2 Ch7	Video A/B Channel 7
V1 Ch8/V2 Ch8	Video A/B Channel 8
V1 Ch9/V2 Ch9	Video A/B Channel 9
V1 Ch10/V2 Ch10	Video A/B Channel 10
V1 Ch11/V2 Ch11	Video A/B Channel 11
V1 Ch12/V2 Ch12	Video A/B Channel 12
V1 Ch13/V2 Ch13	Video A/B Channel 13
V1 Ch14/V2 Ch14	Video A/B Channel 14
V1 Ch15/V2 Ch15	Video A/B Channel 15
V1 Ch16/V2 Ch16	Video A/B Channel 16
V1 MM Ch 1 + 2/V2 MM Ch 1 + 2	Video A/B Monomix Ch 1 + Ch 2
V1 MM Ch 3 + 4/V2 MM Ch 3 + 4	Video A/B Monomix Ch 3 + Ch 4
V1 MM Ch 5 + 6/V2 MM Ch 5 + 6	Video A/B Monomix Ch 5 + Ch 6
V1 MM Ch 7 + 8/V2 MM Ch 7 + 8	Video A/B Monomix Ch 7 + Ch 8
V1 MM Ch 9 + 10/V2 MM Ch 9 + 10	Video A/B Monomix Ch 9 + Ch 10
V1 MM Ch 11 + 12/V2 MM Ch 11 + 12	Video A/B Monomix Ch 11 + Ch 12
V1 MM Ch 13 + 14/V2 MM Ch 13 + 14	Video A/B Monomix Ch 13 + Ch 14
V1 MM Ch 15 + 16/V2 MM Ch 15 + 16	Video A/B Monomix Ch 15 + Ch 16
V1 MM Ch 1 - 2/V2 MM Ch 12	Video A/B Monomix Ch 1 - Ch 2
V1 MM Ch 3 - 4/V2 MM Ch 34	Video A/B Monomix Ch 3 - Ch 4
V1 MM Ch 5 - 6/V2 MM Ch 5 - 6	Video A/B Monomix Ch 5 - Ch 6
V1 MM Ch 7 - 8/V2 MM Ch 7 - 8	Video A/B Monomix Ch 7 - Ch 8
V1 MM Ch 9 - 10/V2 MM Ch 9 - 10	Video A/B Monomix Ch 9 - Ch 10
V1 MM Ch 11 - 12/V2 MM Ch 11 - 12	Video A/B Monomix Ch 11 - Ch 12
V1 MM Ch 13 - 14/V2 MM Ch 13 - 14	Video A/B Monomix Ch 13 - Ch 14
V1 MM Ch 15 - 16/V2 MM Ch 15 - 16	Video A/B Monomix Ch 15 - Ch 16
Mute	Mute Audio Channel

Table 6-9: Source Select – X Menu Options

6.4.7.2. Gain Adjust

The **Gain Adjust** slider sets the audio gain to be applied to the selected audio source. The range is from -24 to 24 dB.

6.4.7.3. Invert Enable

The **Invert Enable** combo box sets the inversion state for the selected audio source. The options are *Normal* or *Invert*. When set to *Invert*, the audio phase will be adjusted 180°.

6.4.8. Misc Traps

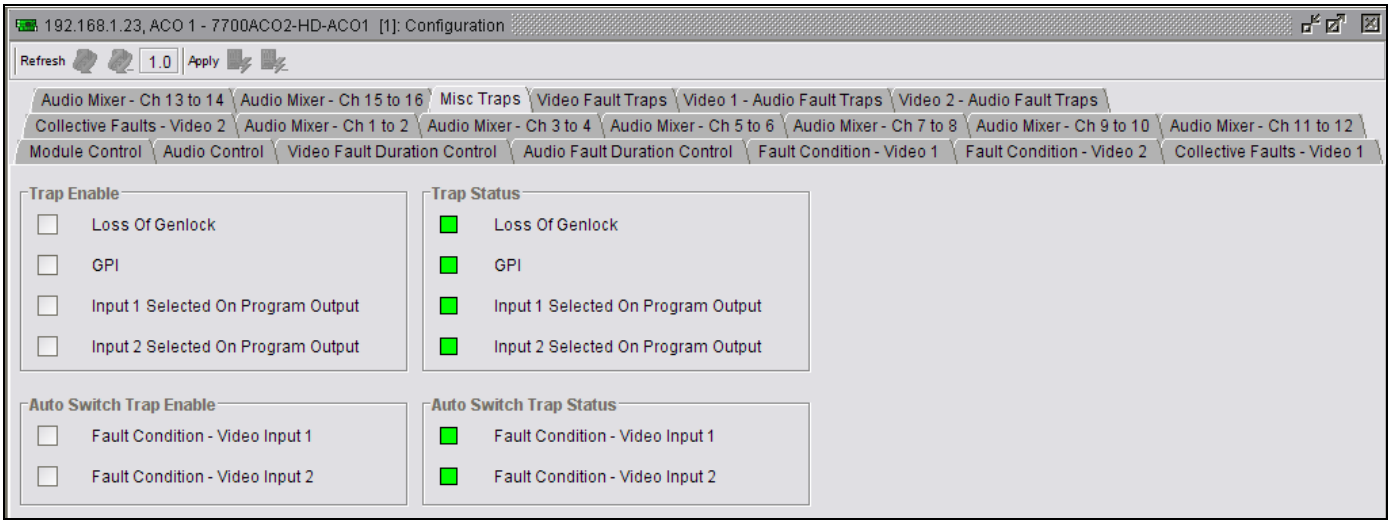

192.168.1.23, ACO 1 - 7700ACO2-HD-ACO1 [1]: Configuration
Refresh
1.0
Apply
Audio Mixer - Ch 13 to 14
Audio Mixer - Ch 15 to 16
Misc Traps
Video Fault Traps
Video 1 - Audio Fault Traps
Video 2 - Audio Fault Traps
Collective Faults - Video 2
Audio Mixer - Ch 1 to 2
Audio Mixer - Ch 3 to 4
Audio Mixer - Ch 5 to 6
Audio Mixer - Ch 7 to 8
Audio Mixer - Ch 9 to 10
Audio Mixer - Ch 11 to 12
Module Control
Audio Control
Video Fault Duration Control
Audio Fault Duration Control
Fault Condition - Video 1
Fault Condition - Video 2
Collective Faults - Video 1
Trap Enable
Loss Of Genlock
GPI
Input 1 Selected On Program Output
Input 2 Selected On Program Output
Trap Status
Loss Of Genlock
GPI
Input 1 Selected On Program Output
Input 2 Selected On Program Output
Auto Switch Trap Enable
Fault Condition - Video Input 1
Fault Condition - Video Input 2
Auto Switch Trap Status
Fault Condition - Video Input 1
Fault Condition - Video Input 2

Figure 6-14: Misc Traps Tab

6.4.9. Video Fault Traps

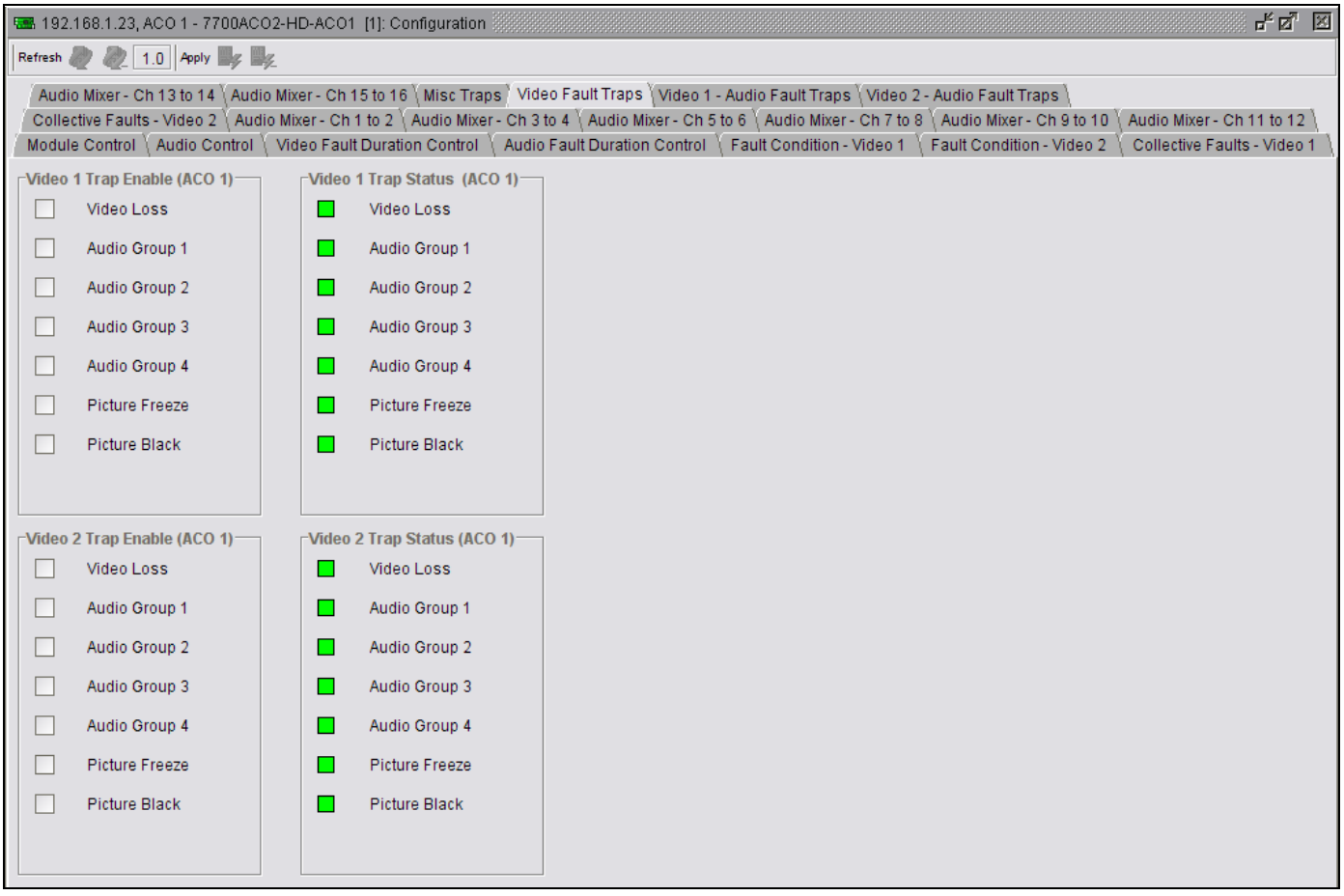


Figure 6-15: Video Fault Traps

6.4.10. Video 1 – Audio Fault Traps

For brevity, only “Video 1 – Audio Fault Traps” will be shown in the manual.

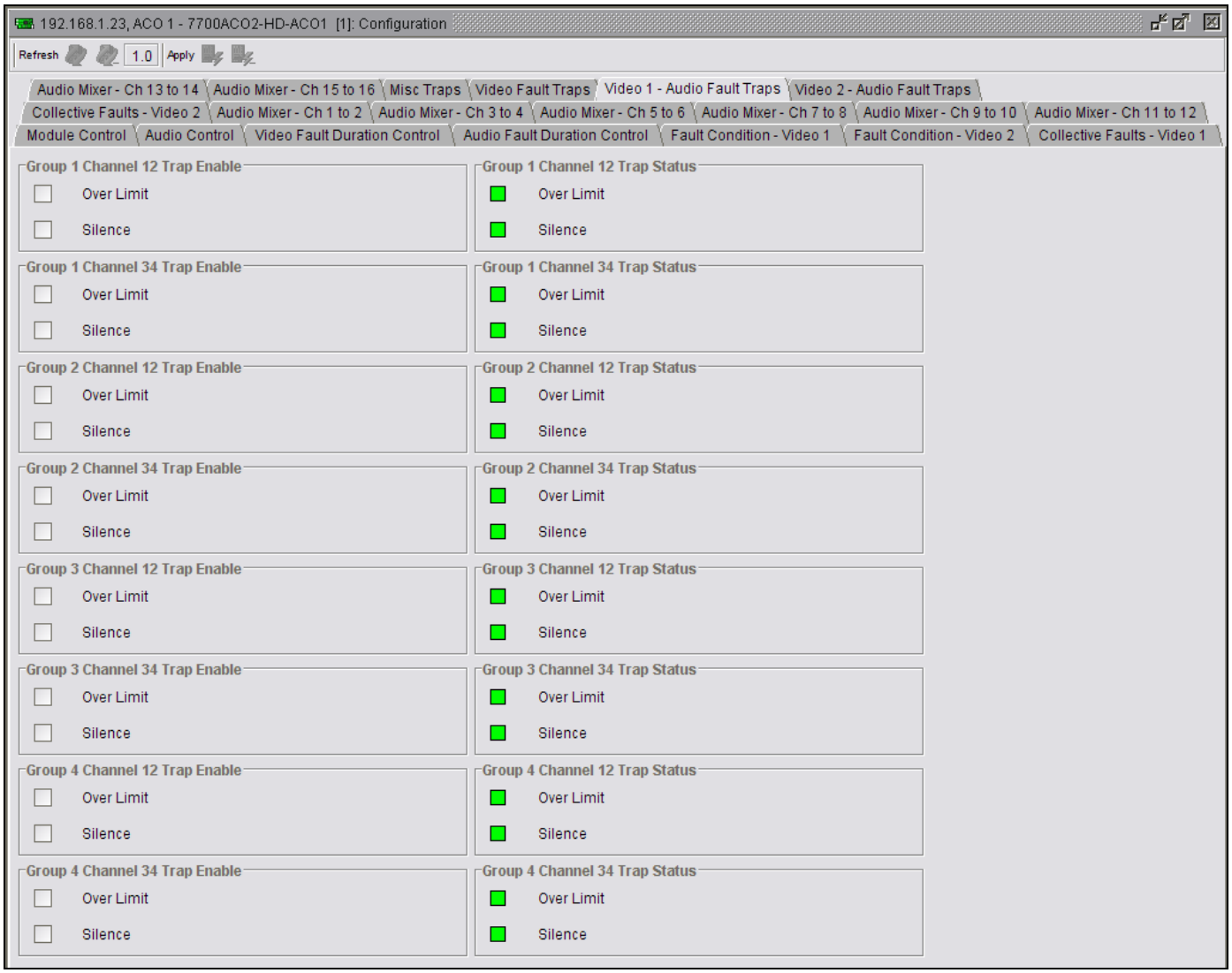


Figure 6-16: Video 1 – Audio Fault Traps

6.5. INTELLIGAIN OPTION

Please refer to the *IntelliGain* manual for more information regarding the +IG option configuration.

When activated, IntelliGain will be applied on the egress audio, according to the Program Configuration selection.

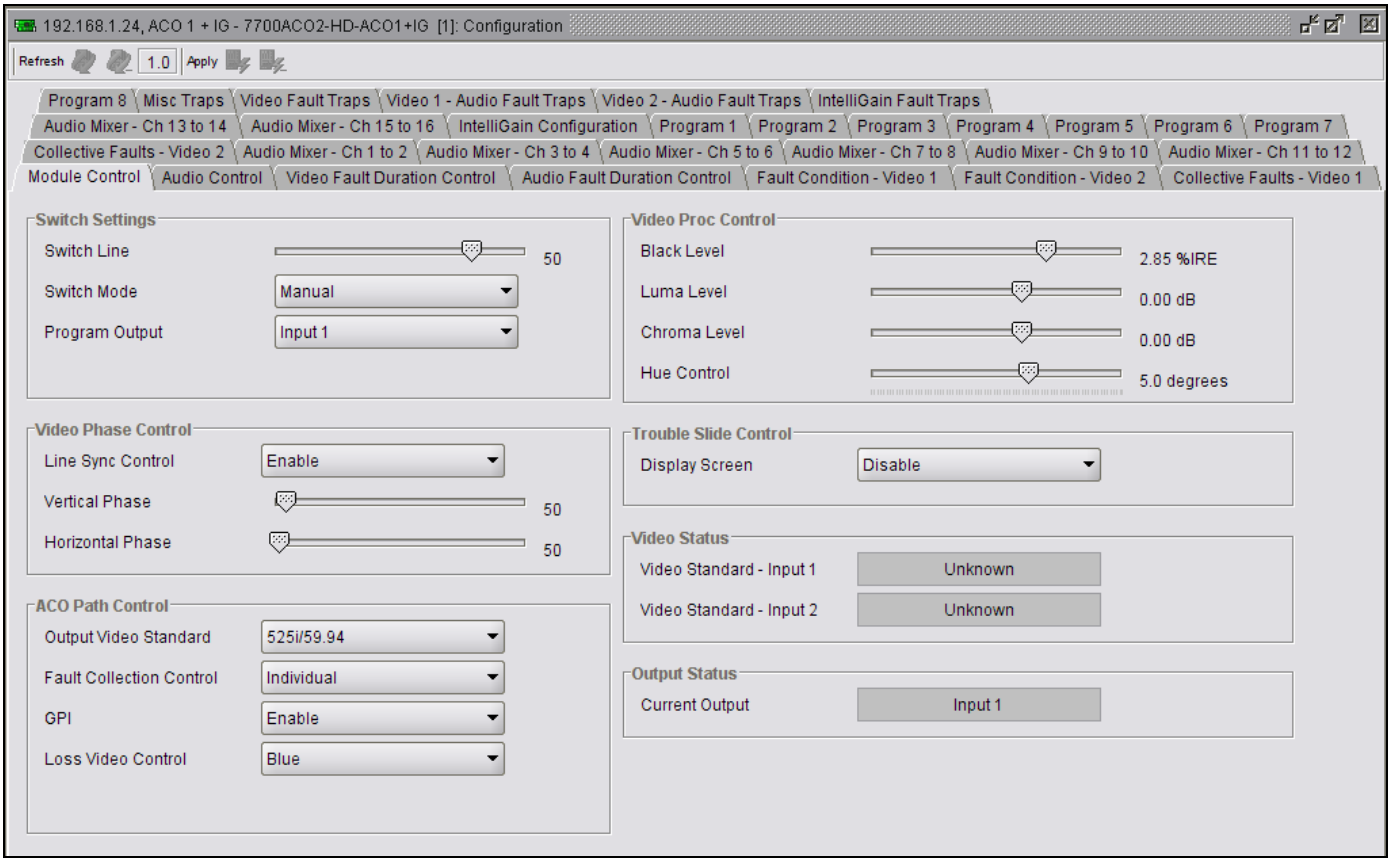


Figure 6-17: IntelliGain Option Parameters

6.6. INTELLITRAK AND INTELLIMATCH OPTIONS

6.6.1. IntelliTrak Analyzer

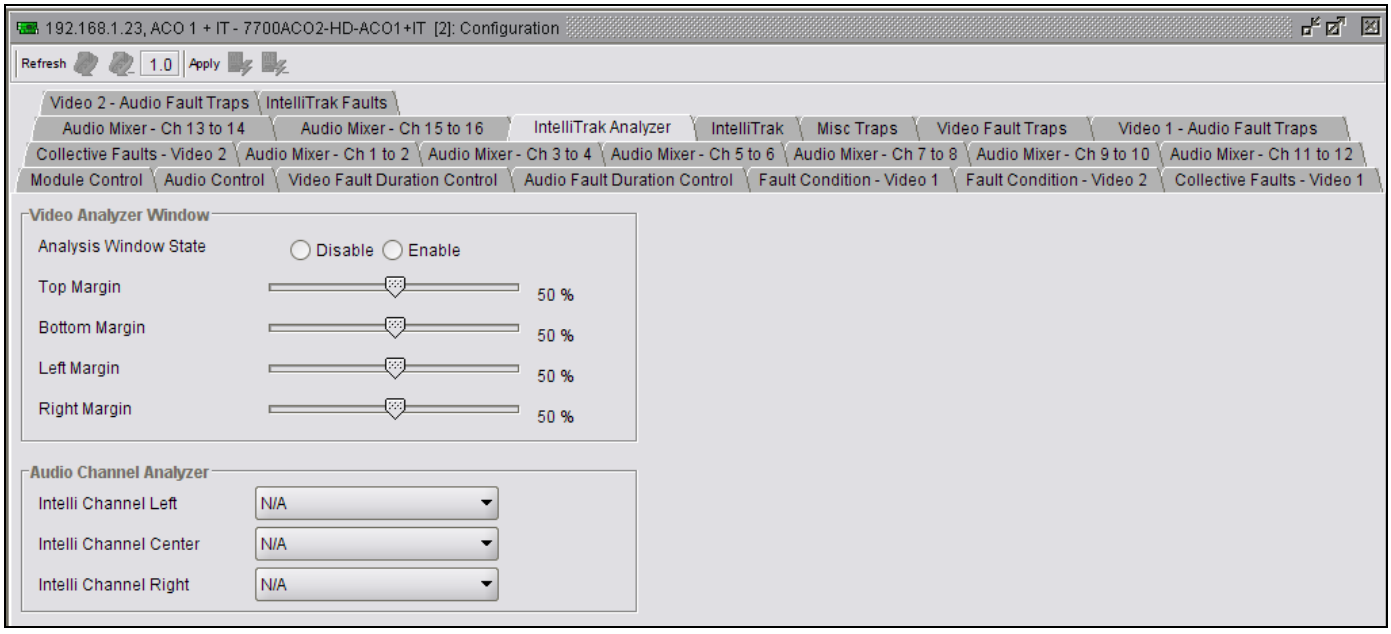


Figure 6-18: IntelliTrak Analyzer Tab for +IT Option & +ITM Option

6.6.1.1. Analysis Window State

The **Analysis Window State** radio button sets the state of the IntelliTrak analysis window. When turned off, IntelliTrak will look at the entire video raster for its comparison. When turned on, it will look at a user-selected portion of the video raster.

6.6.1.2. Window Margin Contros

The **Top, Bottom, Left and Right Margin** sliders set the portion of the video raster that IntelliTrak will look at for its video comparison.

6.6.1.3. Audio Channel Analyzer

The **Intelli Channel Left, Center and Right** combo boxes set the audio channels that will be used in the IntelliTrak analysis. The options are channels 1-16.

6.6.2. IntelliTrak

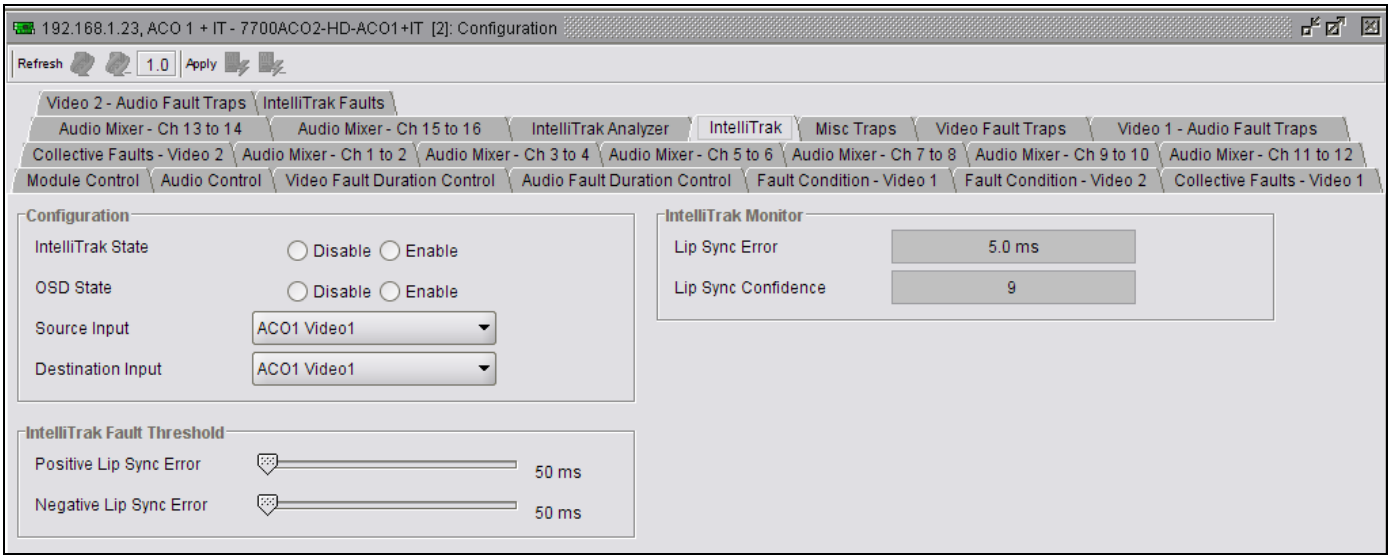


Figure 6-19: IntelliTrak Tab for +IT Option

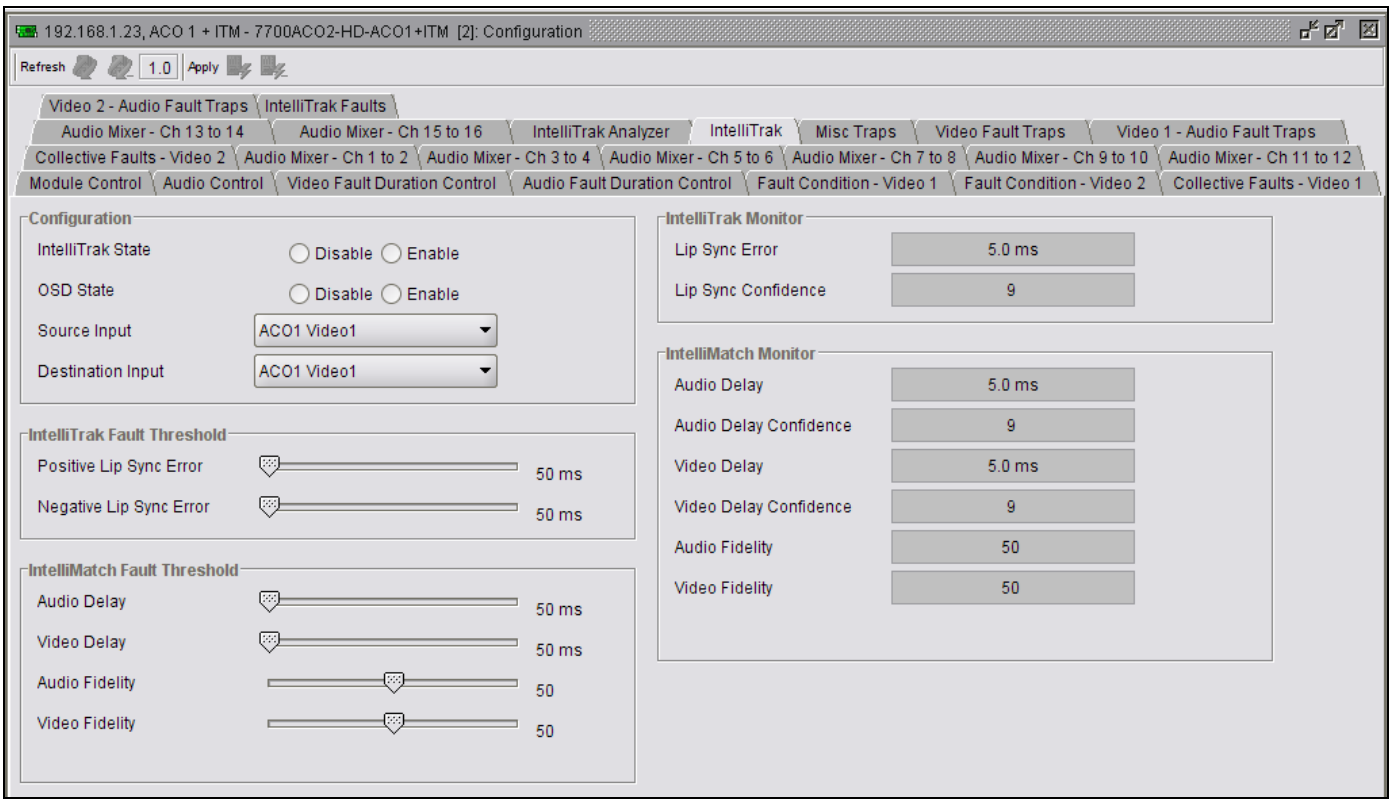


Figure 6-20: IntelliTrak Tab for +ITM Option

6.6.2.1. IntelliTrak State

The **IntelliTrak State** radio button is used to enable or disable IntelliTrak analysis. When enabled, an analysis will be performed at that IntelliTrak statistics will be updated.

6.6.2.2. OSD State

The ***OSD State*** radio button is used to enable or disable the On Screen Display. When enabled, the paths output video will have an on-screen burn-in with a text box containing the various IntelliTrak statistics.

6.6.2.3. Source Input

The **Source Input** combo box is used to set the reference video for the IntelliTrak analysis. This audio and video timing for this input will be taken as the reference point when compared to the destination video. Table 6-10 describes the selections available:

ACO1 Video1
ACO1 Video2
ACO2 Video1
ACO2 Video2

Table 6-10: Source Input Menu Options

6.6.2.4. Destination Input

The **Destination Input** combo box is used to set the comparison video for the IntelliTrak analysis. This audio and video timing for this input will be measured as offsets of the Source Input. The available choices are the same as in the Source Input selection.

Video from either the ACO 1 or ACO 2 path can be selected and compared to each other.

Each ACO path needs to have its video standard set. To do an IntelliTrak comparison between different video standards, connect one feed to the ACO1 path and the other to the ACO2 path.

6.6.2.5. IntelliTrak Thresholds

The **IntelliTrak Thresholds** sliders define the threshold limits for when an alarm is generated.

6.6.2.6. IntelliTrak Monitor

The **IntelliTrak Monitor** displays the calculated IntelliTrak statistics. Table 6-10 describes the various monitored fields and their purpose.

Lip Sync Error	The lip-sync error between the two sources. A negative value means audio is ahead of video.
Lip Sync Confidence	A score from 0 to 9 describing the locking state of the IntelliTrak system. A score of 9 means the system is tracking and accurate.
Audio Delay	The Audio latency between the two sources.
Audio Delay Confidence	A score from 0 to 9 describing the locking state of the IntelliTrak system. A score of 9 means the system is tracking and accurate.
Video Delay	The Video latency between the two sources.
Video Delay Confidence	A score from 0 to 9 describing the locking state of the IntelliTrak system. A score of 9 means the system is tracking and accurate.
Audio Fidelity	A percentage score of how closely the two audio signals are correlated.
Video Fidelity	A percentage score of how closely the two video signals are correlated.

Table 6-11: IntelliTrak Monitored Fields

To view the statistics in real-time, place the view in Auto Refresh mode by selecting the red icon beside Refresh in the VLPro view.

6.6.2.7. IntelliTrak Faults

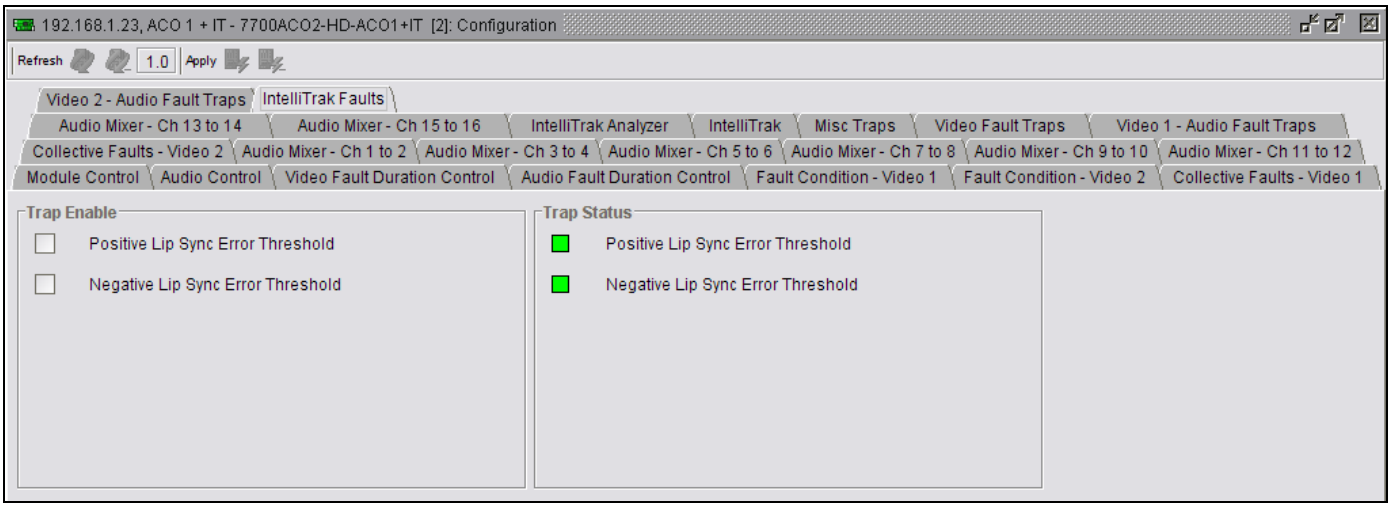

192.168.1.23, ACO 1 + IT - 7700ACO2-HD-ACO1+IT [2]: Configuration
Refresh
1.0
Apply
Video 2 - Audio Fault Traps
IntelliTrak Faults
Audio Mixer - Ch 13 to 14
Audio Mixer - Ch 15 to 16
IntelliTrak Analyzer
IntelliTrak
Misc Traps
Video Fault Traps
Video 1 - Audio Fault Traps
Collective Faults - Video 2
Audio Mixer - Ch 1 to 2
Audio Mixer - Ch 3 to 4
Audio Mixer - Ch 5 to 6
Audio Mixer - Ch 7 to 8
Audio Mixer - Ch 9 to 10
Audio Mixer - Ch 11 to 12
Module Control
Audio Control
Video Fault Duration Control
Audio Fault Duration Control
Fault Condition - Video 1
Fault Condition - Video 2
Collective Faults - Video 1
Trap Enable
Positive Lip Sync Error Threshold
Negative Lip Sync Error Threshold
Trap Status
Positive Lip Sync Error Threshold
Negative Lip Sync Error Threshold

Figure 6-21: IntelliTrak Faults for +IT Option

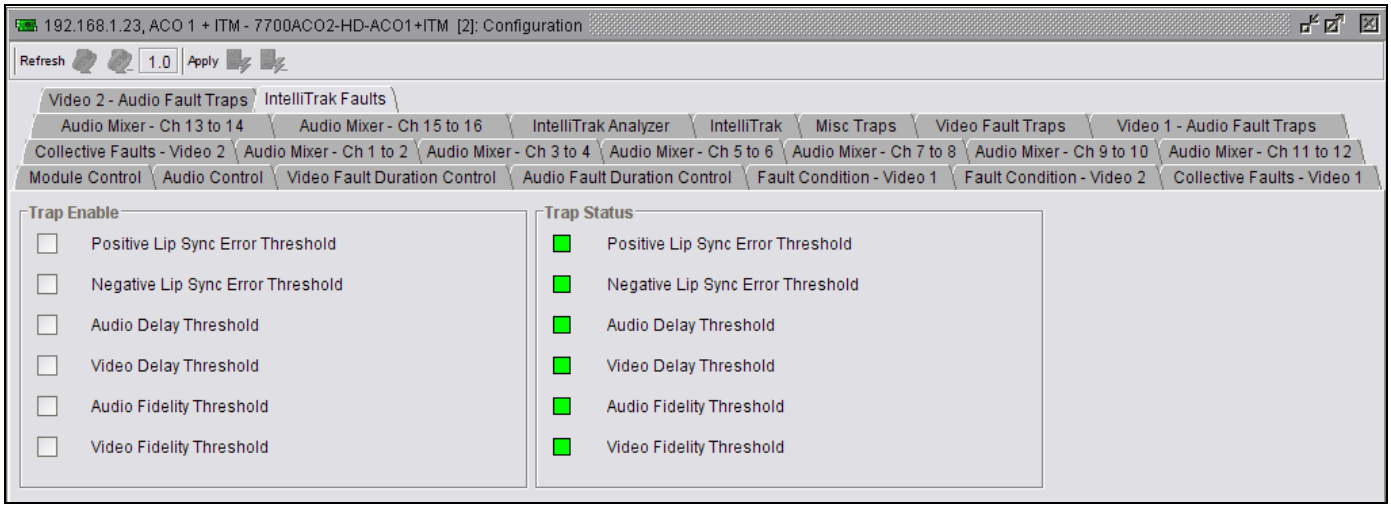

192.168.1.23, ACO 1 + ITM - 7700ACO2-HD-ACO1+ITM [2]: Configuration
Refresh
1.0
Apply
Video 2 - Audio Fault Traps
IntelliTrak Faults
Audio Mixer - Ch 13 to 14
Audio Mixer - Ch 15 to 16
IntelliTrak Analyzer
IntelliTrak
Misc Traps
Video Fault Traps
Video 1 - Audio Fault Traps
Collective Faults - Video 2
Audio Mixer - Ch 1 to 2
Audio Mixer - Ch 3 to 4
Audio Mixer - Ch 5 to 6
Audio Mixer - Ch 7 to 8
Audio Mixer - Ch 9 to 10
Audio Mixer - Ch 11 to 12
Module Control
Audio Control
Video Fault Duration Control
Audio Fault Duration Control
Fault Condition - Video 1
Fault Condition - Video 2
Collective Faults - Video 1
Trap Enable
Positive Lip Sync Error Threshold
Negative Lip Sync Error Threshold
Audio Delay Threshold
Video Delay Threshold
Audio Fidelity Threshold
Video Fidelity Threshold
Trap Status
Positive Lip Sync Error Threshold
Negative Lip Sync Error Threshold
Audio Delay Threshold
Video Delay Threshold
Audio Fidelity Threshold
Video Fidelity Threshold

Figure 6-22: IntelliTrak Faults for +ITM Option

7. FIRMWARE UPGRADE

Firmware can be upgraded through VLPro. Follow the below instructions in the event that a VLPro upgrade cannot be done, or has failed.

To upgrade the firmware on the 7700ACO2-HD unit follow the procedure outlined below:

1. Ensure an Ethernet cable is plugged into the rear of the unit and the frame is powered up.

2. Open a web browser and type the IP address of the card into the URL address field.

3. An upgrade page will appear as shown in Figure 7-1.

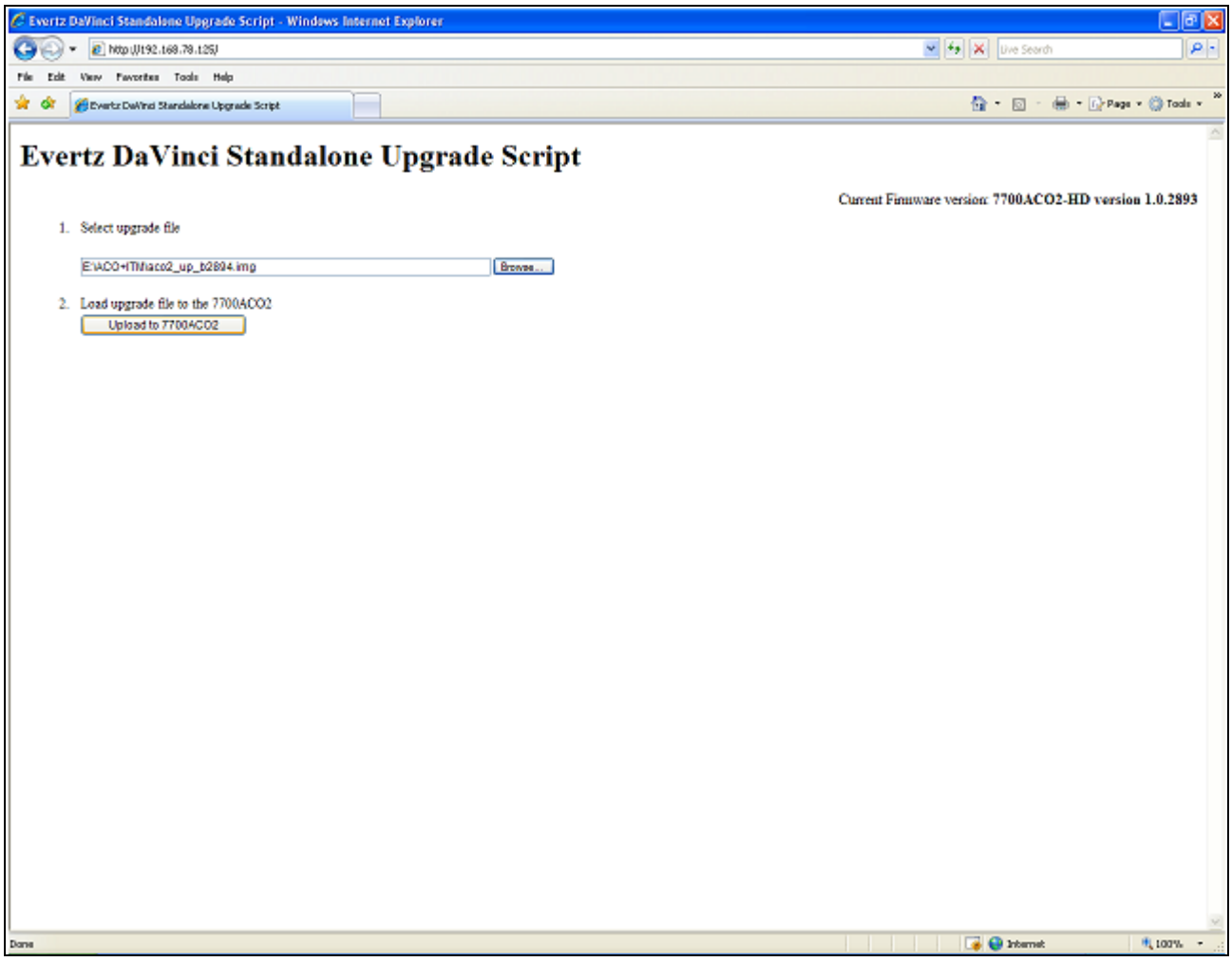

Evertz DaVinci Standalone Upgrade Script - Windows Internet Explorer
Evertz DaVinci Standalone Upgrade Script
Current Firmware version: 7700ACO2-HD version 1.0.2893
1. Select upgrade file
Browse...
2. Load upgrade file to the 7700ACO2
Upload to 7700ACO2

Figure 7-1: Upgrade Window

4. To load the firmware file, select the *Browse* button. A *Choose File* dialogue window will appear as shown in Figure 7-2.

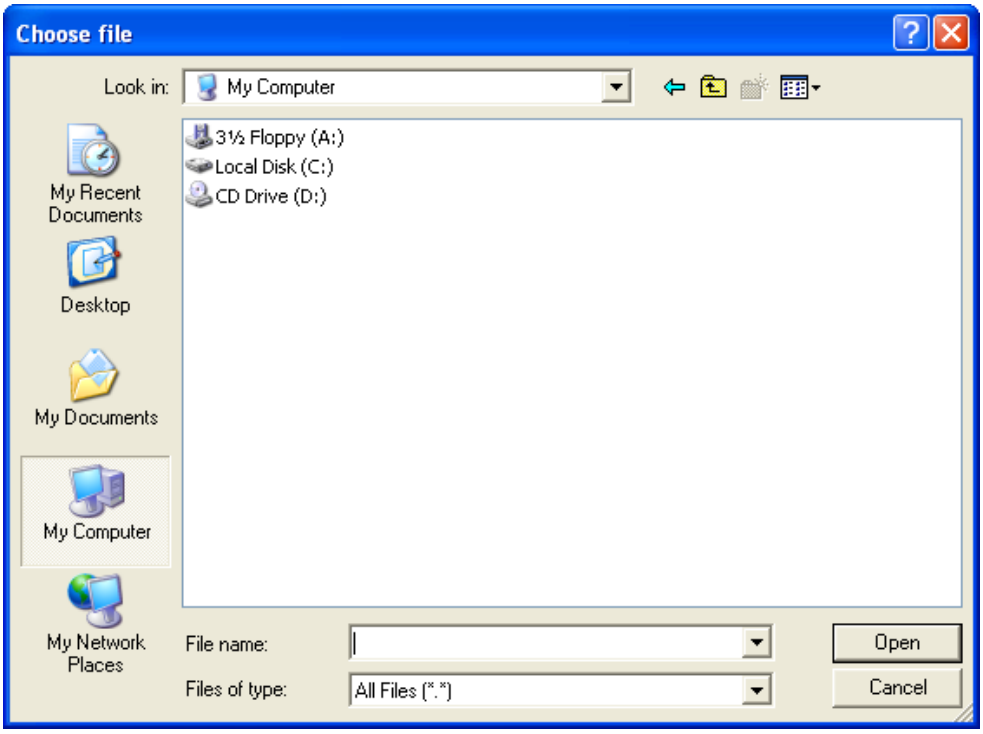


Figure 7-2: Choose File Window

5. Browse to the appropriate file and then select the *Open* button.

6. Once complete the user can close the upgrade configuration window and power cycle the unit.

The Upgrade Firmware window also displays the current version of firmware on the connected 7700ACO2-HD.

8. TROUBLESHOOTING

8.1. MODULE NOT APPEARING IN VISTALINK®

- Ensure that the module is in the right hand slot (if places in the left hand slot it will power up, but not communicate over Ethernet).
- Ensure that the Ethernet port has activity (LED's on the port should light). If there is no activity, check the Ethernet connection.
- Ensure that a valid IP address has been entered in the module through the serial port.
- Attempt a ping to the unit from the VLPro computer. If a ping is unsuccessful, reconfirm that the IP address of the module is entered in correct, and is on the same subnet logically and physically that the VLPro computer is on.
- Ensure that the correct JAR file has been added to VLPro (goto the VLPro help menu, select Version Information, and scroll through the list to find the 7700ACO2-HD). If it does not appear, contact Evertz Service for the latest file.
- Attempt to add the module manually to the VLPro hardware tree. If the module comes up, but is displayed as a question mark, shutdown VLPro and deleted the following file "vistalink install path"/config/VistalinkAgentStandaloneInfo.xml, and restart VLPro.

8.2. INTELLITRAK/INTELLIGAIN OPTIONS ARE NOT AVAILABLE IN VLPRO

- Ensure that the module was ordered with the correct options. To check the options installed, see Section 6.3.1.
- Ensure that the correct JAR file has been added to VLPro (go to the VLPro help menu, select Version Information, and scroll through the list to find the 7700ACO2-HD). If the version is older than the one specified in this manual, contact Evertz Service for the latest file.

8.3. VIDEO SOURCES ARE NOT BEING DETECTED

- Ensure that the loop through outputs of the video inputs are terminated to 75Ω. If left open or floating, the module will not be able to lock to the signal.
- Ensure that the module output has been set to the correct video standard.